

10/563,124-324074-EIC SEARCH

TEXT SEARCH

=> d his 175

(FILE 'HCAPLUS' ENTERED AT 13:10:01 ON 08 MAR 2010)

L75 32 S L72 OR L74
SAV TEMP L75 HAN124HCPA/A

=> d que 175

L3 8586 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (LI(L)CO(L)O)
/ELS
L4 QUE SPE=ON ABB=ON PLU=ON A2/PG
L5 QUE SPE=ON ABB=ON PLU=ON B4/PG
L6 118 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L3 AND L4
AND L5
L9 31 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L6 AND
MG/ELS AND ZR/ELS
L11 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 872-36-6/RN
L12 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 77-77-0/RN
L16 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "1,4-BUTANEDI
OL, 1,4-DIMETHANESULFONATE"/CN
L17 32059 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON BATTERY(3A)ELE
CTROLYTE
L18 54 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L9
L20 98972 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON BATTERY(3A)(SE
CONDARY OR LITHIUM)
L22 123 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L6
L23 52 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L17
L24 1602 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L11
L25 SEL PLU=ON L11 1- NAME : 5 TERMS
L26 1977 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L25
L27 2059 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L24 OR L26
L28 15 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L27 AND L23
L29 1165 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L12
L30 SEL PLU=ON L12 1- NAME : 8 TERMS
L31 3551 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L30
L32 3947 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L29 OR L31
L33 2849 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16
L34 SEL PLU=ON L16 1- NAME : 37 TERMS
L35 3059 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L34
L36 3428 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L33 OR L35
L37 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND (L36
OR L32)
L38 17 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L27
L39 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 105-58-8/RN
L40 7146 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39
L41 SEL PLU=ON L39 1- NAME : 9 TERMS
L42 40945 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L41
L43 41939 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L40 OR L42
L44 20 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L43
L45 1 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L32
L46 0 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L36
L47 56 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L23 OR L28 OR
L37 OR L38 OR (L44 OR L45 OR L46)
L49 QUE SPE=ON ABB=ON PLU=ON PY=<2005 NOT P/DT
L50 QUE SPE=ON ABB=ON PLU=ON (PY=<2005 OR PRY=<2005 OR
AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT
L51 32 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND (L49
OR L50)
L52 QUE SPE=ON ABB=ON PLU=ON BATTER? OR (ELECTROCHEM? O
R ELECTROLY? OR GALVAN? OR WET OR DRY OR PRIMARY OR SEC
ONDARY) (2A) (CELL OR CELLS)
L53 32 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L51 AND (L52
OR L20)
L54 31 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L53 AND

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(ELECTROLYT? OR L17)
L55      19 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L54 AND L18
L56      31 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L54 OR L55
L57      QUE SPE=ON  ABB=ON  PLU=ON  ELECTROD? OR ELECTROD?(2A)
          (POSITIVE OR NEGATIVE) OR CATHOD? OR ANOD?
L58      31 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L56 AND L57
L59      QUE SPE=ON  ABB=ON  PLU=ON  ACTIVE(3A) (MATERIAL OR SUB
          STANCE)
L60      QUE SPE=ON  ABB=ON  PLU=ON  NONAQUEOUS OR NON(A)AQUEOU
          S
L61      QUE SPE=ON  ABB=ON  PLU=ON  GROUP(2A) (II OR IV)
L62      27 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 AND (L59
          OR L60 OR L61)
L63      4 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 NOT L62
L64      31 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 OR L62 OR
          L63
L65      QUE SPE=ON  ABB=ON  PLU=ON  ?PERCENT? OR .PERCENT. OR
          PER(W)CENT? OR PCT? OR RATIO# OR PROPORTION? OR PART
L66      QUE SPE=ON  ABB=ON  PLU=ON  MOL OR WEIGHT
L67      1 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L53 NOT L64
L68      32 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L64 OR L67
L69      12 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L68 AND (L65
          OR L66)
L70      32 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L68 OR L69
L71      19 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L70 AND L18
L72      32 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L70 OR L71
L73      QUE SPE=ON  ABB=ON  PLU=ON  VOLT OR VOLTAGE
L74      4 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 AND L73
L75      32 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 OR L74

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TEXT SEARCH RESULTS

=> d 175 1-32 ibib ed abs hitstr hitind

L75 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2007:664302 HCAPLUS Full-text
 DOCUMENT NUMBER: 147:55492
 TITLE: Cathode active mass, its
 manufacture, cathodes, and
 secondary nonaqueous-
 electrolyte batteries
 INVENTOR(S): Tatsumi, Koji; Amagasaki, Yukiko; Imafuku,
 Yoko
 PATENT ASSIGNEE(S): Agc Seimi Chemical Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2007157596	A	20070621	JP 2005-353966	2005 1207

PRIORITY APPLN. INFO.: <--
 JP 2005-353966
 2005
 1207
 <--

ED Entered STN: 21 Jun 2007

AB The title ~~cathode~~ mass contains Li, Co, and Zr, where 30-95 mol% the Zr is contained as Zr oxide to give 5-70 mol% Li mixed oxides. The ~~cathode~~ mass is manufactured by mixing raw materials and then firing, where the fired powders contain insol. components while bringing the powders into contact with 18% aqueous HCl solution at 225°. The insol. components contain 30-95 mol% of the Zr. The ~~cathode~~ is equipped with the active mass, a conductive material, and a binder. The ~~secondary battery~~ equipped with the ~~cathode~~ provides high capacity under high voltage and long cycle life.

IT 756879-33-1

RL: TEM (Technical or engineered material use); USES (Uses)
 (zirconium-containing mixed oxide in manufacture of active mass for
 cathodes and secondary nonaq.-
 electrolyte batteries)

RN 756879-33-1 HCAPLUS

CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2
Al	x	7429-90-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST zirconium lithium mixed oxide ~~cathode~~ manuf
 secondary nonaq battery

IT Secondary batteries

(lithium; zirconium-containing mixed oxide in manufacture of
 active mass for cathodes and secondary
 nonaq.-electrolyte batteries)

IT Battery cathodes

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(zirconium-containing mixed oxide in manufacture of active mass for
cathodes and secondary nonaq.-
electrolyte batteries)

IT 1314-23-4, Zirconium oxide, uses 756879-33-1
RL: TEM (Technical or engineered material use); USES (Uses)
(zirconium-containing mixed oxide in manufacture of active mass for
cathodes and secondary nonaq.-
electrolyte batteries)

L75 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2007:117698 HCAPLUS Full-text

DOCUMENT NUMBER: 146:209722

TITLE: Battery

INVENTOR(S): Obana, Yoshiaki; Tokunaga, Takashi; Akashi,
Hiroyuki

PATENT ASSIGNEE(S): Sony Corporation, Japan

SOURCE: U.S. Pat. Appl. Publ., 21pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20070026311	A1	20070201	US 2006-459514	2006 0724
JP 2007059379	A	20070308	<-- JP 2006-141036	2006 0522
KR 2007015059	A	20070201	<-- KR 2006-71264	2006 0728
CN 1917276	A	20070221	<-- CN 2006-10136308	2006 0731
PRIORITY APPLN. INFO.:			<-- JP 2005-222195	A 2005 0729
			<-- JP 2006-141036	A 2006 0522

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 02 Feb 2007

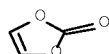
AB A battery capable of improving the charge and discharge efficiency even when the
battery voltage is set to over 4.2 V is provided. A cathode and an anode are
oppositely arranged with an electrolyte and a separator in between. The open circuit
voltage in full charge is in the range from 4.25 V to 6.00 V. The cathode has a
cathode current collector and a cathode active material layer provided on the cathode
current collector. The cathode active material layer contains, as a binder, a polymer
with intrinsic viscosity of 2.0 dL/g to 10 dL/g which contains vinylidene fluoride as
an element.

IT 872-36-6, Vinylene carbonate
868842-82-4

RL: TEM (Technical or engineered material use); USES (Uses)
(battery with cathode containing binder)

RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 868842-82-4 HCAPLUS
 CN Aluminum cobalt lithium magnesium zirconium oxide
 (Al0.01Co0.97LiMg0.01Zr0.01O2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Zr	0.01	7440-67-7
Co	0.97	7440-48-4
Mg	0.01	7439-95-4
Li	1	7439-93-2
Al	0.01	7429-90-5

INCL 429217000; 429231300; 429223000; 429221000; 429231500; 429220000;
 429229000; 429231600; 429338000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery cathode
 IT Battery cathodes
 (battery with cathode containing binder)
 IT Carbonaceous materials (technological products)
 Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (battery with cathode containing binder)
 IT Secondary batteries
 (lithium; battery with cathode
 containing binder)
 IT 193215-53-1P, Cobalt lithium manganese nickel oxide
 (Co0.2LiMn0.3Ni0.5O2) 372492-00-7P, Aluminum cobalt lithium
 magnesium oxide (Al0.01Co0.98LiMg0.01O2)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (battery with cathode containing binder)
 IT 872-36-6, Vinylene carbonate
 9002-88-4, Polyethylene 9003-07-0, Polypropylene 24937-79-9,
 Polyvinylidene fluoride 37323-13-0, Chromium cobalt
 lithium oxide 104245-03-6, Cobalt lithium zinc
 oxide 116713-67-8, Cobalt lithium titanium oxide
 120479-28-9, Cobalt copper lithium oxide 131344-56-4,
 Cobalt lithium nickel oxide 146956-50-5, Cobalt
 lithium vanadium oxide 147683-99-6, Cobalt
 lithium zirconium oxide 149087-95-6, Cobalt
 lithium tin oxide 152654-50-7, Cobalt iron
 lithium oxide 154838-53-6, Aluminum cobalt
 lithium oxide 186298-15-7 186298-17-9 186298-22-6
 187144-47-4, Calcium cobalt lithium oxide 187144-48-5,
 Cobalt lithium magnesium oxide 214536-41-1, Cobalt
 lithium manganese oxide 253875-52-4, Cobalt
 lithium niobium oxide 253875-55-7, Cobalt
 lithium strontium oxide 326895-11-8, Cobalt
 lithium yttrium oxide 346417-97-8, Cobalt lithium
 manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 350580-22-2,
 Cobalt lithium tungsten oxide 382151-87-3, Boron
 cobalt lithium oxide 478037-17-1 483965-60-2, Cobalt
 gallium lithium oxide 656812-56-5, Cobalt
 lithium molybdenum oxide 824957-50-8 824957-51-9
 855998-69-5 855998-70-8 855998-71-9 855998-72-0
 863498-38-8 864452-44-8 868842-82-4 897031-15-1
 897031-16-2 897031-18-4 922733-62-8 922733-63-9

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922733-64-0

RL: TEM (Technical or engineered material use); USES (Uses)
 (battery with cathode containing binder)

L75 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2006:1094429 HCAPLUS Full-text
 DOCUMENT NUMBER: 145:401049
 TITLE: Secondary batteries
 containing lithium tetrafluoroborate
 in nonaqueous electrolytes
 , and method for charging the
 batteries
 INVENTOR(S): Tsutsumi, Shuji; Iwanaga, Masato; Oga,
 Keisuke; Nishida, Nobumichi
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

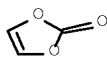
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006286382	A	20061019	JP 2005-104283	2005 0331

PRIORITY APPLN. INFO.: <--
 JP 2005-104283
 2005
 0331

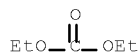
ED Entered STN: 20 Oct 2006
 AB The batteries have cathode active mass with potential (based on Li) 4.4-4.6 V
 containing Zr- and Mg-containing LiCoO₂ and layered Li Mn Ni mixed oxides, and 0.05-
 1.5% (based on weight of nonaq. electrolytes) LiBF₄ in nonaq. electrolytes. The
 batteries show improved cycle efficiency and reduced swelling.
 IT 642999-33-5P, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (cathode active mass; secondary
 batteries containing lithium tetrafluoroborate in
 nonaq. electrolytes)
 RN 642999-33-5 HCAPLUS
 CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

IT 872-36-6, Vinylene carbonate
 RL: DEV (Device component use); MOA (Modifier or additive use);
 USES (Uses)
 (electrolyte additive; secondary
 batteries containing lithium tetrafluoroborate in
 nonaq. electrolytes)
 RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 105-58-8, Diethyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; secondary batteries
 containing lithium tetrafluoroborate in nonaq.
 electrolytes)
 RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte battery charging
 cathode electrolyte; lithium
 tetrafluoroborate nonaq electrolyte
 battery; battery cathode cobalt
 lithium magnesium zirconium oxide; cobalt lithium
 manganese nickel oxide battery cathode
 IT Secondary batteries
 (lithium; secondary batteries
 containing lithium tetrafluoroborate in nonaq.
 electrolytes)
 IT Battery cathodes
 Battery electrolytes
 (secondary batteries containing lithium
 tetrafluoroborate in nonaq. electrolytes)
 IT 532934-38-6P, Cobalt lithium manganese nickel oxide
 (Co0.34LiMn0.33Ni0.33O2) 642999-33-5P, Cobalt lithium
 magnesium zirconium oxide
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (cathode active mass; secondary
 batteries containing lithium tetrafluoroborate in
 nonaq. electrolytes)
 IT 872-36-6, Vinylene carbonate
 14283-07-9, Lithium tetrafluoroborate
 RL: DEV (Device component use); MOA (Modifier or additive use);
 USES (Uses)
 (electrolyte additive; secondary
 batteries containing lithium tetrafluoroborate in
 nonaq. electrolytes)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 623-53-0, Methyl ethyl
 carbonate 21324-40-3, Lithium
 hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; secondary batteries
 containing lithium tetrafluoroborate in nonaq.
 electrolytes)

L75 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2006:1094404 HCAPLUS Full-text
 DOCUMENT NUMBER: 145:401047
 TITLE: Secondary nonaqueous
 electrolyte batteries bonded
 with pressure-sensitive adhesive tapes, and

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method for charging the ~~batteries~~
 INVENTOR(S): Obayashi, Atsushi
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 11pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: ~~Patent~~
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

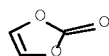
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006286337	A	20061019	JP 2005-103173	2005 0331

PRIORITY APPLN. INFO.: <--
 JP 2005-103173
 2005
 0331
 <--

ED Entered STN: 20 Oct 2006
 AB The ~~batteries~~ have ~~cathode~~ active mass with potential (based on Li) 4.4-4.6 V containing (A) Zr- and Mg-containing Li Co mixed oxides and (B) layered Li Ni Mn mixed oxides, and pressure-sensitive adhesive tapes composed of substrate layers and rubber adhesive layers for protection, insulation, or prevention of unwinding of ~~electrodes~~. The ~~batteries~~ have ~~cathode~~ active mass with improved thermal stability at high potential, and show improved safety and cycle efficiency.
 IT ~~642999-33-5F~~, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (~~cathode~~ active mass; ~~secondary~~
 ~~nonaq. electrolyte batteries~~ bonded
 with pressure-sensitive adhesive tapes)
 RN 642999-33-5 HCAPLUS
 CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

IT 872-36-6, Vinylene carbonate
 RL: DEV (Device component use); MOA (Modifier or additive use);
 USES (Uses)
 (~~electrolyte~~ additive; ~~secondary~~
 ~~nonaq. electrolyte batteries~~ bonded
 with pressure-sensitive adhesive tapes)
 RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST ~~nonaq electrolyte battery~~ charging
 ~~cathode~~ adhesive tape; ~~battery cathode~~
 cobalt lithium magnesium zirconium oxide; cobalt

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lithium manganese nickel oxide battery
cathode; pressure sensitive adhesive tape polypropylene
isoprene rubber battery

IT Secondary batteries
(lithium; secondary nonaq.
electrolyte batteries bonded with
pressure-sensitive adhesive tapes)

IT Isoprene rubber, uses
RL: DEV (Device component use); USES (Uses)
(pressure-sensitive adhesive; secondary nonaq.
. electrolyte batteries bonded with
pressure-sensitive adhesive tapes)

IT Adhesive tapes
Battery cathodes
Battery electrolytes
(secondary nonaq. electrolyte
batteries bonded with pressure-sensitive adhesive
tapes)

IT 182442-95-1P, Cobalt lithium manganese nickel oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(cathode active mass; secondary
nonaq. electrolyte batteries bonded
with pressure-sensitive adhesive tapes)

IT 872-36-6, Vinylene carbonate
RL: DEV (Device component use); MOA (Modifier or additive use);
USES (Uses)
(electrolyte additive; secondary
nonaq. electrolyte batteries bonded
with pressure-sensitive adhesive tapes)

IT 9003-31-0
RL: DEV (Device component use); USES (Uses)
(isoprene rubber, pressure-sensitive adhesive;
secondary nonaq. electrolyte
batteries bonded with pressure-sensitive adhesive
tapes)

IT 9003-07-0, Polypropylene
RL: DEV (Device component use); USES (Uses)
(pressure-sensitive adhesive tape substrate; secondary
nonaq. electrolyte batteries bonded
with pressure-sensitive adhesive tapes)

L75 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:1094402 HCAPLUS Full-text

DOCUMENT NUMBER: 145:401046

TITLE: Secondary nonaqueous
electrolyte batteries having
cathode active mass with controlled
size and shape, and method for charging the
batteries

INVENTOR(S): Inoue, Hidetoshi; Nishida, Nobumichi

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2006286336	A	20061019	JP 2005-103172	

2005
0331

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10/563,124-324074-EIC SEARCH

PRIORITY APPLN. INFO.:

JP 2005-103172

2005

0331

<--

ED Entered STN: 20 Oct 2006

AB The ~~batteries~~ have ~~cathode~~ active mass with potential (based on Li) 4.4-4.6 V containing (A) Zr- and Mg-containing Li Co mixed oxides with average particle size (X) 7-30 μ m, and (B) layered Li Ni Mn mixed oxides having average particle size (Y) 2-15 μ m and aggregated spherical or elliptical shapes with ~~ratio~~ of minor axis/major axis 0.80-1.0, satisfying $X/Y = 1.4-15$. The ~~batteries~~ have ~~cathode~~ active mass with improved thermal stability at high potential, and show improved safety and cycle efficiency.

IT 642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(~~cathode~~ active mass; ~~secondary~~
~~nonaq. electrolyte batteries~~ having
~~cathode~~ active mass with controlled size and shape)

RN 642999-33-5 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST ~~nonaq electrolyte battery~~ charging
~~cathode~~ size shape; ~~battery~~ ~~cathode~~
~~cobalt lithium magnesium zirconium oxide~~; ~~cobalt~~
~~lithium manganese nickel oxide battery~~
~~cathode~~

IT Secondary batteries
(~~lithium~~; ~~secondary~~ ~~nonaq.~~
~~electrolyte batteries~~ having ~~cathode~~
active mass with controlled size and shape)

IT Battery cathodes
(~~secondary~~ ~~nonaq. electrolyte~~
~~batteries~~ having ~~cathode~~ active mass with
controlled size and shape)

IT 182442-95-1P, Cobalt lithium manganese nickel oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(~~cathode~~ active mass; ~~secondary~~
~~nonaq. electrolyte batteries~~ having
~~cathode~~ active mass with controlled size and shape)

L75 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:918270 HCAPLUS Full-text

DOCUMENT NUMBER: 145:274968

TITLE: ~~Nonaqueous electrolyte~~
~~secondary battery~~INVENTOR(S): Iwanaga, Masato; Nishida, Nobumichi; Tsutsumi,
Shuji

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 9pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

10/563,124-324074-EIC SEARCH

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060199077	A1	20060907	US 2006-359965	2006 0223
JP 2006236725	A	20060907	JP 2005-48171	2005 0224
KR 2006094477	A	20060829	KR 2006-17530	2006 0223
CN 1825675	A	20060830	CN 2006-10009554	2006 0224
CN 100539291	C	20090909	JP 2005-48171	2005 0224

PRIORITY APPLN. INFO.: A

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 08 Sep 2006

AB The invention concerns a non-aqueous electrolyte secondary battery with excellent discharge cycle characteristics and a charging termination potential ranging from 4.4 to 4.6 V based on lithium, consisting of a pos. electrode comprising a pos. electrode active material, a neg. electrode, and a non-aqueous electrolyte containing a non-aqueous solvent and an electrolyte salt, in which the pos. electrode active material comprises a mixture of a lithium-cobalt composite oxide containing at least both zirconium and magnesium in LiCoO₂, and a lithium-manganese-nickel composite oxide having a layered structure and containing at least both manganese and nickel, and the potential of the pos. electrode active material ranges from 4.4 to 4.6 V based on lithium, and the non-aqueous electrolyte contains at least one of aromatic compds. selected from the group consisting at least of toluene derivs., anisole derivs., biphenyl, cyclohexyl benzene, tert-Bu benzene, tert-amyl benzene, and di-Ph ether.

IT 105-58-8, Diethyl carbonate

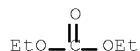
642999-33-5, Cobalt lithium magnesium zirconium oxide

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte secondary battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 642999-33-5 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

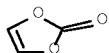
IT 872-36-6, Vinylene carbonate

10/563,124-324074-EIC SEARCH

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)

RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



INCL 429231300; 429231600; 429224000; 429223000; 429326000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte secondary
 battery
 IT Battery cathodes
 Battery electrolytes
 Secondary batteries
 (nonaq. electrolyte secondary
 battery)
 IT Aromatic compounds
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 623-53-0, Ethyl methyl carbonate
 162684-16-4, Lithium manganese nickel oxide 182442-95-1, Cobalt
 lithium manganese nickel oxide 532934-38-6, Cobalt lithium
 manganese nickel oxide (Co_{0.34}LiMn_{0.33}Ni_{0.33}O₂)
 642999-33-5, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)
 IT 92-52-4, Biphenyl, uses 98-06-6, tert-Butylbenzene 100-66-3D,
 Anisole, derivative 101-84-8, Diphenyl ether 108-88-3D, Toluene,
 derivative 827-52-1, Cyclohexylbenzene 872-36-6,
 Vinylene carbonate 2049-95-8, tert-Amylbenzene
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)

L75 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:890059 HCAPLUS Full-text

DOCUMENT NUMBER: 145:274867

TITLE: Nonaqueous electrolyte
 secondary battery

INVENTOR(S): Ooga, Keisuke; Iwanaga, Masato; Inomata,
 Hideyuki; Ohshita, Ryuji

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 20060194111	A1	20060831	US 2006-362225	2006 0227
			<--	
JP 2006244723	A	20060914	JP 2005-54381	

10/563,124-324074-EIC SEARCH

2005

0228

KR 2006095462

A

20060831

<--
KR 2006-15179

2006

0216

CN 1848511

A

20061018

<--
CN 2006-10051464

2006

0228

CN 100508272

C

20090701

PRIORITY APPLN. INFO.:

<--
JP 2005-54381

A

2005

0228

<--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 01 Sep 2006

AB A non-aqueous electrolyte

secondary cell excellent in cycle characteristics is provided. This purpose is achieved by the following structure. A non-aqueous electrolyte secondary cell has a pos. electrode having a pos.

electrode active material, a

neg. electrode having a neg.

electrode active material, and a non-aqueous electrolyte having a non-aqueous solvent

and an electrolytic salt. The pos. electrode active material has a lithium-cobalt

compound oxide having added therein at least zirconium. The non-aqueous electrolyte

has LiBF₄ at from 0.05 to 1.0 mass% of a total mass of the non-aqueous electrolyte and

unsatd. cyclic carbonate at from 1.0 to 4.0 mass%. The true d. ratio of the pos.

electrode is 0.72 or greater, the true d. ratio being represented by formula 1 shown

below: (Formula 1) True d. ratio=active material apparent d. of electrode active

material layer/true d. of active material.

IT 105-58-8, Diethyl carbonate

872-36-6, Vinylene carbonate

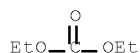
RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte secondary

battery)

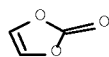
RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 642999-33-58, Cobalt lithium magnesium zirconium oxide

RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(nonaq. electrolyte secondary

battery)

RN 642999-33-5 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component		Ratio		Component
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10/563,124-324074-EIC SEARCH

		Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

INCL 429231300; 429231600

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary
batteryIT Battery cathodes
Secondary batteries
(nonaq. electrolyte secondary
battery)IT Fluoropolymers, uses
Styrene-butadiene rubber, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte secondary
battery)IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
carbonate 623-53-0, Ethyl methyl carbonate
872-36-6, Vinylene carbonate
7429-90-5, Aluminum, uses 7782-42-5, Graphite, uses 7791-03-9
14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium
hexafluorophosphate 52627-24-4, Cobalt lithium oxide
90076-65-6 132843-44-8
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte secondary
battery)IT 642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(nonaq. electrolyte secondary
battery)IT 98-06-6, tert-Butylbenzene 827-52-1, Cyclohexylbenzene
7439-95-4, Magnesium, uses 7440-44-0, Carbon, uses 7440-67-7,
Zirconium, uses 9000-11-7, CMC 24937-79-9, Pvdif
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte secondary
battery)IT 9003-55-8
RL: MOA (Modifier or additive use); USES (Uses)
(styrene-butadiene rubber; nonaq. electrolyte
secondary battery)L75 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2006:889999 HCAPLUS Full-text
DOCUMENT NUMBER: 145:274866
TITLE: Charging method of nonaqueous
electrolyte secondary
battery

INVENTOR(S): Miyazaki, Shinya; Nishida, Nobumichi

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 12pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20060194110	A1	20060831	US 2006-355183	2006

10/563,124-324074-EIC SEARCH

0216

JP 2006228651 A 20060831 JP 2005-43545

2005

0221

KR 2006093293 A 20060824 KR 2006-16118

2006

0220

CN 1825674 A 20060830 CN 2006-10008693

2006

0221

PRIORITY APPLN. INFO.: JP 2005-43545 A

2005

0221

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 01 Sep 2006

AB A non-aqueous electrolyte

secondary battery with excellent cycle characteristics and thermal stability in which the potential of the pos. electrode active material ranges from 4.4 V to 4.6 V based on lithium, and-charging method therefor are provided, wherein the pos. electrode active substance of a non-aqueous electrolyte secondary battery comprises a hexagonal system of lithium-containing transition metal composite oxide formed by adding zirconium, magnesium, and aluminum as foreign elements upon synthesis of lithium cobalt oxide, with zirconium content ranging from 0.01 to 1 mol%, magnesium content ranging from 0.01 to 3 mol%, and aluminum content ranging from 0.01 to 3 mol%, and an Li/Co molar ratio ranging from 1.00 to 1.05.

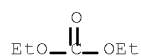
IT 105-58-8, Diethyl carbonate

RL: DEV (Device component use); USES (Uses)

(charging method of nonaq. electrolyte
secondary battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



IT 756879-33-1F

RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(charging method of nonaq. electrolyte
secondary battery)

RN 756879-33-1 HCAPLUS

CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2
Al	x	7429-90-5

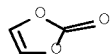
IT 872-36-6, Vinylene carbonate

RL: MOA (Modifier or additive use); USES (Uses)

(charging method of nonaq. electrolyte
secondary battery)

10/563,124-324074-EIC SEARCH

RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



INCL 429231300; 429050000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49
 ST nonaq electrolyte secondary
 battery charging method
 IT Coprecipitation
 Secondary batteries
 (charging method of nonaq. electrolyte
 secondary battery)
 IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (charging method of nonaq. electrolyte
 secondary battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate
 RL: DEV (Device component use); USES (Uses)
 (charging method of nonaq. electrolyte
 secondary battery)
 IT 756879-33-1P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (charging method of nonaq. electrolyte
 secondary battery)
 IT 872-36-6, Vinylene carbonate
 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses
 7440-67-7, Zirconium, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (charging method of nonaq. electrolyte
 secondary battery)

L75 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2006:517317 HCAPLUS Full-text
 DOCUMENT NUMBER: 145:11312
 TITLE: Method of charging nonaqueous
 electrolyte secondary
 battery
 INVENTOR(S): Nishida, Nobumichi; Inoue, Hidetoshi
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 7 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 20060115733	A1	20060601	US 2005-288355	2005 1129
			<--	
US 7438991	B2	20081021		
JP 2006156230	A	20060615	JP 2004-347187	2004 1130

10/563,124-324074-EIC SEARCH

KR 2006060559 A 20060605 KR 2005-100878
 2005
 1025

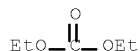
CN 1783548 A 20060607 CN 2005-10127178
 2005
 1130

CN 100553015 C 20091021
 PRIORITY APPLN. INFO.: JP 2004-347187 A
 2004
 1130

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 ED Entered STN: 02 Jun 2006

AB The invention provides a non-aqueous electrolyte secondary cell that has high capacity and excels in cycle characteristics. The non-aqueous electrolyte secondary cell functions stably at a high potential of from 4.4 to 4.6 V with respect to lithium and inhibits the decomposition of the electrolytic solution at high potential. This is accomplished as follows. The non-aqueous electrolyte secondary cell has a pos. electrode having a pos. electrode active material; a neg. electrode having a neg. electrode active material; and a non-aqueous electrolyte having a non-aqueous solvent and electrolytic salt. The pos. electrode active material has: lithium cobalt compound oxide having added therein at least zirconium and magnesium; and lithium-nickel-manganese compound oxide having a layered structure. The pos. electrode active material has a potential of from 4.4 to 4.6 V with respect to lithium. The non-aqueous solvent contains di-Et carbonate of 10 volume% or higher at 25°.

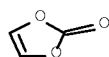
IT 105-58-8, Diethyl carbonate
 642999-33-5, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (method of charging nonaq. electrolyte secondary battery)
 RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 642999-33-5 HCAPLUS
 CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component	Registry Number
O	x		17778-80-2
Zr	x		7440-67-7
Co	x		7440-48-4
Mg	x		7439-95-4
Li	x		7439-93-2

IT 872-36-6, Vinylene carbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (method of charging nonaq. electrolyte secondary battery)
 RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



INCL 429231100; 429231300; 429326000; 429332000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST ~~nonaq electrolyte secondary~~
 battery charging method
 IT Battery anodes
 Battery cathodes
 Secondary batteries
 (method of charging ~~nonaq. electrolyte~~
 secondary battery)
 IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); USES (Uses)
 (method of charging ~~nonaq. electrolyte~~
 secondary battery)
 IT 887748-06-3, Cobalt manganese nickel hydroxide
 (Co_{0.34}Mn_{0.33}Ni_{0.33}(OH)₂)
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)
 (method of charging ~~nonaq. electrolyte~~
 secondary battery)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5,
 Graphite, uses 147683-99-6, Cobalt lithium zirconium oxide
 162684-16-4, Lithium manganese nickel oxide 642999-33-5
 , Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (method of charging ~~nonaq. electrolyte~~
 secondary battery)
 IT 872-36-6, Vinylene carbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (method of charging ~~nonaq. electrolyte~~
 secondary battery)

L75 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:470248 HCAPLUS Full-text

DOCUMENT NUMBER: 144:471465

TITLE: ~~Nonaqueous electrolyte~~
 secondary battery

INVENTOR(S): Tode, Shingo; Fujimoto, Hiroyuki; Takahashi,
 Yasufumi; Kinoshita, Akira; Hasegawa,
 Kazuhiro; Fujitani, Shin

PATENT ASSIGNEE(S): Sanyo Electric Co., Japan

SOURCE: U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DOCUMENT TYPE: ~~Patent~~

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20060105241	A1	20060518	US 2005-168380	2005 0629
			<--	
US 7435510	B2	20081014		
JP 2006164934	A	20060622	JP 2005-60288	2005 0304
			<--	

10/563,124-324074-EIC SEARCH

KR 2006048698 A 20060518 KR 2005-57003 2005
0629

CN 1773765 A 20060517 CN 2005-10080727 2005
0630

CN 100505406 C 20090624 <--

PRIORITY APPLN. INFO.: JP 2004-329406 A 2004
1112

JP 2005-60288 A 2005
0304

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ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 19 May 2006

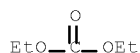
AB A noneq. electrolyte secondary battery comprises a pos. electrode containing a pos. active material, a neg. electrode containing a neg. active material and a noneq. electrolyte, wherein a lithium transition metal complex oxide A formed by allowing LiCoO₂ to contain at least both of Zr and Mg and a lithium transition metal complex oxide B having a layered structure and containing at least both of Mn and Ni as transition metals and containing Mo are mixed and used as the pos. active material.

IT 105-58-8, Diethyl carbonate
756879-33-1 886752-61-0 886752-62-1

RL: DEV (Device component use); USES (Uses)
(noneq. electrolyte secondary
battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 756879-33-1 HCAPLUS

CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2
Al	x	7429-90-5

RN 886752-61-0 HCAPLUS

CN Cobalt lithium magnesium titanium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4
Li	x	7439-93-2

10/563,124-324074-EIC SEARCH

RN 886752-62-1 HCAPLUS

CN Cobalt lithium magnesium tin zirconium oxide (CA INDEX NAME)

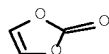
Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Sn	x	7440-31-5
Mg	x	7439-95-4
Li	x	7439-93-2

IT 872-36-6, Vinylene carbonate

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)

RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



INCL 429231300; 429231600; 429223000; 429224000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary
battery

IT Transition metal oxides

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (lithiated; nonaq. electrolyte
 secondary battery)

IT Secondary batteries

(lithium; nonaq. electrolyte
 secondary battery)

IT Battery cathodes

(nonaq. electrolyte secondary
 battery)

IT 477700-15-5P, Cobalt lithium oxide (Co_{0.99}LiO₂)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (Mg- and Zr-doped; nonaq. electrolyte
 secondary battery)

IT 372492-00-7P, Aluminum cobalt lithium magnesium oxide

(Al_{0.01}Co_{0.98}LiMg_{0.01}O₂)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (Zr-doped; nonaq. electrolyte
 secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl

carbonate 623-53-0, Ethyl methyl carbonate

756879-33-1 864452-44-8 886752-61-0

886752-62-1

RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary
 battery)

IT 886752-63-2P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (nonaq. electrolyte secondary
 battery)

IT 872-36-6, Vinylene carbonate

10/563,124-324074-EIC SEARCH

7439-95-4, Magnesium, uses 7440-67-7, Zirconium, uses
532934-38-6, Cobalt lithium manganese nickel oxide
(Co_{0.34}LiMn_{0.33}Ni_{0.33}O₂)

RL: MOA (Modifier or additive use); USES (Uses)

(nonaq. electrolyte secondary
battery)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
THIS RECORD (2 CITINGS)
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:1262422 HCAPLUS Full-text

DOCUMENT NUMBER: 143:480471

TITLE: Nonaqueous electrolyte
secondary battery

INVENTOR(S): Kitao, Hideki; Fujihara, Toyoki; Takeda,
Kazuhisa; Nakanishi, Naoya; Nohma, Toshiyuki

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20050266313	A1	20051201	US 2005-138268	2005 0527
			<--	
US 7452631	B2	20081118		
JP 2005340055	A	20051208	JP 2004-158780	2004 0528
			<--	
CN 1702905	A	20051130	CN 2005-10074304	2005 0525
			<--	
CN 100502133	C	20090617		
KR 2006048132	A	20060518	KR 2005-44816	2005 0527
			<--	
PRIORITY APPLN. INFO.:			JP 2004-158780	A 2004 0528
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 02 Dec 2005

AB In a non-aqueous electrolyte
secondary battery using a layered lithium-transition metal composite oxide as a pos .
electrode active material,
elevated-temperature durability, i.e., elevated-temperature storage performance is
enhanced without degrading battery capacity. The non-aqueous electrolyte secondary
battery includes: a pos. electrode including, as a pos. electrode active material,
layered lithium-transition metal composite oxide containing lithium, nickel, and
manganese; a neg. electrode active material capable of intercalating and
deintercalating lithium; and a non-aqueous electrolyte having lithium ion conductivity,
and the lithium-transition metal composite oxide contains a group IVA element and a
group IIA element of the periodic table.

IT 105-58-8, Diethyl carbonate

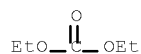
RL: DEV (Device component use); USES (Uses)

10/563,124-324074-EIC SEARCH

(nonaq. electrolyte secondary
battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



IT 869792-63-2P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(nonaq. electrolyte secondary
battery)

RN 869792-63-2 HCAPLUS

CN Cobalt lithium magnesium manganese nickel zirconium oxide (CA
INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Ni	x	7440-02-0
Mn	x	7439-96-5
Mg	x	7439-95-4
Li	x	7439-93-2

IC ICM H01M004-52

ICS H01M004-50

INCL 429231100; 429223000; 429224000; 429231500; 429231600; 429231300

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49

ST nonaq electrolyte secondary
battery

IT Secondary batteries
(lithium; nonaq. electrolyte
secondary battery)

IT Battery cathodes
(nonaq. electrolyte secondary
battery)

IT 217309-43-8P, Cobalt lithium manganese nickel oxide
(Co_{0.3}LiMn_{0.3}Ni_{0.4}O₂)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(Mn- and Zr-doped; nonaq. electrolyte
secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
carbonate 7782-42-5, Graphite, uses 21324-40-3,
Lithium hexafluorophosphate 362666-83-9, Aluminum lithium
manganese oxide (Al_{0.1}Li_{1.1}Mn_{1.8}O₄)

RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte secondary
battery)

IT 869792-63-2P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(nonaq. electrolyte secondary
battery)

IT 7439-96-5, Manganese, uses 7440-67-7, Zirconium, uses

RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte secondary

10/563,124-324074-EIC SEARCH

battery)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:1102902 HCAPLUS Full-text

DOCUMENT NUMBER: 143:329274

TITLE: Secondary nonaqueous
electrolyte batteryINVENTOR(S): Abe, Hiroshi; Miyoshi, Kazuhiro; Takahashi,
Yasufumi; Fujimoto, Hiroyuki; Kinoshita,
Akira; Toide, Shingo; Nakane, Ikuro; Fujitani,
ShinPATENT ASSIGNEE(S): Ube Industries, Ltd., Japan; Sanyo Electric
Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2005285630	A	20051013	JP 2004-99430	2004 0330
			<--	
JP 4291195	B2	20090708		
CA 2525923	A1	20050930	CA 2005-2525923	2005 0218
			<--	
WO 2005099021	A1	20051020	WO 2005-JP2576	2005 0218
			<--	
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CN 1806361	A	20060719	CN 2005-80000453	2005 0218
			<--	
CN 100544108	C	20090923		
EP 1739783	A1	20070103	EP 2005-710409	2005 0218
			<--	
R: DE, FR, GB				
US 20060166096	A1	20060727	US 2006-563124	2006 0103
			<--	
KR 2007004796	A	20070109	KR 2006-720316	2006

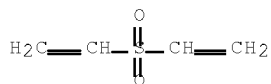
10/563,124-324074-EIC SEARCH

0929

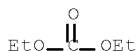
PRIORITY APPLN. INFO.: <-- JP 2004-99430 A 2004 0330
 <-- WO 2005-JP2576 W 2005 0218
 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

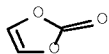
ED Entered STN: 14 Oct 2005
 AB The battery has a graphite anode, a LiCoO₂ based cathode, and a nonaq. electrolyte solution; where the LiCoO₂ contains Group IIA and Group IVA elements, and the electrolyte solution contains 0.2-1.5% of a compound having sulfonyl group.
 IT 77-77-0, Divinyl sulfone
 105-58-8, Diethyl carbonate
 872-36-6, Vinylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. containing sulfonyl compound for secondary lithium batteries)
 RN 77-77-0 HCAPLUS
 CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 642999-33-5, Cobalt lithium magnesium zirconium oxide
 RL: DEV (Device component use); USES (Uses)
 (magnesium and zirconium containing lithium cobaltate cathodes for secondary lithium batteries)
 RN 642999-33-5 HCAPLUS
 CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4

10/563,124-324074-EIC SEARCH

Mg		x		7439-95-4
Li		x		7439-93-2

IC ICM H01M010-40
ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery cathode lithium cobalt zinc
magnesium oxide; sulfonyl compd electrolyte soln
secondary lithium battery

IT Battery electrolytes
(electrolyte solns. containing sulfonyl compound for
secondary lithium batteries)

IT Secondary batteries
(lithium; secondary lithium
batteries with magnesium and zirconium containing lithium
cobaltate cathodes and sulfonyl compound containing
electrolyte solns.)

IT Battery cathodes
(magnesium and zirconium containing lithium cobaltate
cathodes for secondary lithium
batteries)

IT 77-77-0, Divinyl sulfone 96-49-1,
Ethylene carbonate 105-58-8, Diethyl
carbonate 872-36-6, Vinylene
carbonate 21324-40-3, Lithium hexafluorophosphate
433304-54-2
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing sulfonyl compound for
secondary lithium batteries)

IT 642999-33-5, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); USES (Uses)
(magnesium and zirconium containing lithium cobaltate
cathodes for secondary lithium
batteries)

L75 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:985067 HCAPLUS Full-text

DOCUMENT NUMBER: 143:251104

TITLE: Secondary nonaqueous-

electrolyte battery with
excellent cycling performanceINVENTOR(S): Chiga, Takanobu; Yanagida, Katsunori; Yanai,
Atsushi; Kita, Yoshinori

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005243301	A	20050908	JP 2004-48591	2004 0224
			<--	
US 20050196674	A1	20050908	US 2005-64112	2005 0223
			<--	
US 7335446	B2	20080226		
PRIORITY APPLN. INFO.:			JP 2004-48591	A 2004 0224
			<--	

10/563,124-324074-EIC SEARCH

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 09 Sep 2005

AB In the ~~battery~~, the ~~cathode~~ active mass is a transition metal oxide with layered structure containing Li, Co, Group IVB element, and Group IIB element, and at least part of the oxide is covered with a phosphate compound represented by M1PO_k (M1 = 3-valent element; k = 2-4). The ~~battery~~ has excellent cycle performance without lowering of initial charge/discharge efficiency.

IT 253868-42-7, Cobalt lithium magnesium titanium oxide

678158-98-0, Cobalt hafnium lithium magnesium oxide

RL: DEV (Device component use); USES (Uses)

(~~nonaq.-electrolyte battery~~ using

phosphate-coated layered oxide containing Li, Co, Group IVB element, and Group IIB element as ~~cathode~~ active mass)

RN 253868-42-7 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4
Li	x	7439-93-2

RN 678158-98-0 HCAPLUS

CN Cobalt hafnium lithium magnesium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Hf	x	7440-58-6
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

IT 642999-33-58, Cobalt lithium magnesium zirconium oxide

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(~~nonaq.-electrolyte battery~~ using

phosphate-coated layered oxide containing Li, Co, Group IVB element, and Group IIB element as ~~cathode~~ active mass)

RN 642999-33-5 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

IC ICM H01M004-58

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST layered lithium cobalt oxide Group IVB IIB element ~~cathode~~

; lithium cobalt oxide phosphate coating ~~battery~~

~~cathode~~; ~~nonaq electrolyte~~

~~battery cathode~~ active mass cycling performance

IT ~~Battery cathodes~~

(~~nonaq.-electrolyte battery~~ using

phosphate-coated layered oxide containing Li, Co, Group IVB

10/563,124-324074-EIC SEARCH

element, and Group IIB element as ~~cathode~~ active mass)

IT 13765-96-3, Cerium phosphate 13778-59-1, Lanthanum phosphate
13990-54-0, Yttrium phosphate ~~253868-42-7~~, Cobalt
lithium magnesium titanium oxide ~~678158-98-0~~, Cobalt
hafnium lithium magnesium oxide
RL: DEV (Device component use); USES (Uses)
(~~nonaq.-electrolyte battery~~ using
phosphate-coated layered oxide containing Li, Co, Group IVB
element, and Group IIB element as ~~cathode~~ active
mass)

IT 7784-30-7P, Aluminum phosphate ~~642999-33-5P~~, Cobalt
lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(~~nonaq.-electrolyte battery~~ using
phosphate-coated layered oxide containing Li, Co, Group IVB
element, and Group IIB element as ~~cathode~~ active
mass)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
THIS RECORD (2 CITINGS)

L75 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:726431 HCAPLUS Full-text

DOCUMENT NUMBER: 143:176285

TITLE: ~~Nonaqueous electrolyte~~
~~secondary lithium~~
~~batteries with excellent charge~~
~~storage~~

INVENTOR(S): Yanai, Atsushi; Yanagida, Katsunori; Kita,
Yoshinori; Noma, Toshiyuki

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: ~~Patent~~

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005216795	A	20050811	JP 2004-25189	2004 0202

PRIORITY APPLN. INFO.: <-- JP 2004-25189
2004
0202

ED Entered STN: 11 Aug 2005

AB The ~~batteries~~ comprise a Li-intercalating ~~anode~~ with active materials having BET
surface area of ≤ 5.0 m²/g, a Li-containing transition metal oxide ~~cathode~~, and ~~nonaq.~~
~~electrolytes~~ with their solvents containing ≥ 50 volume% γ -butyrolactone and are
characterized by the value of the depth of discharge (DOD) showing min. $dV/d(DOD)$ ($V =$
~~battery voltage~~ on 5-h rate discharging; $DOD = 10-80\%$; $dV/d(DOD) < -0.015$) (R) being 10-
16.8% of DOD. Preferably, the ~~cathode active material~~ is Li-containing Co oxides or
contain ≥ 1 element(s) selected from Groups 2, 4, 7, 8, 9, 10, 12, 13, and 14 elements.
~~Cathode side reaction is prevented under the given DOD conditions.~~

IT ~~642999-33-5P~~, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(~~cathode active material~~;
~~nonaq. γ -butyrolactone electrolyte~~
~~secondary lithium batteries with~~
~~excellent charge storage~~)

10/563,124-324074-EIC SEARCH

RN 642999-33-5 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

IC ICM H01M010-40

ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary
lithium battery charge storage high;
butyrolactone nonaq electrolyte solvent
secondary lithium battery; cobalt
lithium oxide cathode secondary
lithium battery

IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(cathode active materials containing;
nonaq. γ -butyrolactone electrolyte
secondary lithium batteries with
excellent charge storage)

IT Secondary batteries
(lithium; nonaq. γ -butyrolactone
electrolyte secondary lithium
batteries with excellent charge storage)

IT Battery cathodes
(nonaq. γ -butyrolactone electrolyte
secondary lithium batteries with
excellent charge storage)

IT Group VIIB element compounds
RL: DEV (Device component use); USES (Uses)
(oxides, transition metal oxide cathode
active materials containing; nonaq.
 γ -butyrolactone electrolyte secondary
lithium batteries with excellent charge
storage)

IT Alkaline earth oxides
Group IIB element oxides
Group IIIA element oxides
Group IVA element oxides
Group IVB element oxides
Group VIII element oxides
RL: DEV (Device component use); USES (Uses)
(transition metal oxide cathode active
materials containing; nonaq.
 γ -butyrolactone electrolyte secondary
lithium batteries with excellent charge
storage)

IT 52627-24-4P, Cobalt lithium oxide 149087-95-6P, Cobalt lithium
tin oxide 642999-33-5E, Cobalt lithium magnesium
zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(cathode active material;
nonaq. γ -butyrolactone electrolyte
secondary lithium batteries with
excellent charge storage)

IT 14283-07-9, Lithium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolyte; nonaq. γ -butyrolactone

10/563,124-324074-EIC SEARCH

electrolyte secondary lithium
batteries with excellent charge storage)

IT 96-49-1, Ethylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvent with γ -butyrolactone; nonaq.
 γ -butyrolactone electrolyte secondary
lithium batteries with excellent charge
storage)

IT 96-48-0, γ -Butyrolactone
RL: DEV (Device component use); USES (Uses)
(solvent; nonaq. γ -butyrolactone
electrolyte secondary lithium
batteries with excellent charge storage)

L75 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:497042 HCAPLUS Full-text
DOCUMENT NUMBER: 143:29515
TITLE: Secondary nonaqueous
electrolyte battery
INVENTOR(S): Nishimura, Makiko; Takeuchi, Takashi;
Nagasaki, Akira; Takagi, Suguru
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005149959	A	20050609	JP 2003-387180	2003 1117

PRIORITY APPLN. INFO.: <-- JP 2003-387180
2003
1117

ED Entered STN: 10 Jun 2005

AB The battery has a cathode active mass-containing cathode; an anode active mass-containing anode, and a nonaq. electrolyte solution; where the cathode active mass comprises Li Co composite oxide particles and the electrolyte solution contains LiPF₆ and LiBF₄ as electrolyte salt; where the oxide furthermore contains ≥ 1 M1 element selected from Mg, Cu and Zn and ≥ 1 M2 element selected from Al, Ca, Ba, Sr, Y and Zr; The M1 element is evenly distributed in the oxide particles, and the M2 element is distributed more in the surface than inside of the oxide particles.

IT 642999-33-S, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); USES (Uses)
(cathodes containing lithium cobalt composite oxides and
electrolytes containing LiPF₆ and LiBF₄ for
secondary lithium batteries)

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

10/563,124-324074-EIC SEARCH

IC ICM H01M010-40
 ICS H01M004-02; H01M004-58; C01G051-00
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST ~~secondary battery cathode~~
~~lithium cobalt composite oxide; battery~~
~~electrolyte lithium hexafluorophosphate~~
~~lithium tetrafluoroborate~~
 IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium
 hexafluorophosphate 642999-33-5, Cobalt lithium
 magnesium zirconium oxide 642999-49-3, Aluminum cobalt lithium
 magnesium oxide 721430-98-4, Cobalt lithium magnesium strontium
 oxide 721430-99-5, Calcium cobalt lithium magnesium oxide
 852995-92-7, Barium cobalt lithium magnesium oxide 852995-93-8,
 Cobalt lithium magnesium yttrium oxide 852995-94-9, Aluminum
 cobalt copper lithium oxide 852995-95-0, Aluminum cobalt lithium
 zinc oxide
 RL: DEV (Device component use); USES (Uses)
 (~~cathodes containing lithium cobalt composite oxides and~~
~~electrolytes containing LiPF6 and LiBF4 for~~
~~secondary lithium batteries~~)

L75 ANSWER 16 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:451706 HCAPLUS Full-text

DOCUMENT NUMBER: 143:10533

TITLE: ~~Secondary nonaqueous~~
~~electrolyte battery~~

INVENTOR(S): Takeuchi, Takashi; Nagasaki, Akira; Yoshizawa,
 Hiroshi

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
 Japan

SOURCE: PCT Int. Appl., 57 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005048380	A1	20050526	WO 2004-JP16653	2004 1110

<--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT,
 LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG,
 CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CN 1875505	A	20061206	CN 2004-80032047	2004 1110
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CN 100495774	C	20090603		
US 20080248392	A1	20081009	US 2006-572590	2006 0320

<--

KR 2006066125	A	20060615	KR 2006-707766	
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10/563,124-324074-EIC SEARCH

2006

0421

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KR 789081
PRIORITY APPLN. INFO.:

B1 20071226

JP 2003-387160 A

2003

1117

<--

WO 2004-JP16653 W

2004

1110

<--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 27 May 2005

AB The battery has a separator between a cathode and an anode and an electrolyte solution; where the cathode contains a cathode active mass, comprising a Li composite oxide: $\text{Li}_x\text{Me}_1\text{-y-zMyLzO}_2$ [Me = transition metal element(s) excluding Ti, Mn, Y, and Zr; M = Mg, Ti, Mn, and/or Zn; L = Al, Ca, Ba, Sr, Y, and/or Zr; x = 1-1.05; y = 0.005-0.1 (but y = 0.005-0.5 when M is Mn); and z = 0-0.05]; and the separator consists of a stack of single-layer films, having a fine porous structure; where the single-layer film facing the cathode is made of polypropylene.

IT 852333-28-9, Cobalt lithium magnesium zirconium oxide
($\text{Co}_{0.94}\text{LiMg}_{0.05}\text{Zr}_{0.01}\text{O}_2$)

RL: DEV (Device component use); USES (Uses)
(cathodes containing lithium composite oxides and
separators containing polypropylene for secondary
lithium batteries)

RN 852333-28-9 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide ($\text{Co}_{0.94}\text{LiMg}_{0.05}\text{Zr}_{0.01}\text{O}_2$)
(CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====	=====	=====
O	2	17778-80-2
Zr	0.01	7440-67-7
Co	0.94	7440-48-4
Mg	0.05	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-48

ICS H01M004-58; H01M004-02; H01M010-40; H01M002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery cathode
lithium composite oxide; battery separator
single layer film stack polyethylene

IT Battery cathodes
Secondary battery separators
(cathodes containing lithium composite oxides
and separators containing polypropylene for secondary
lithium batteries)

IT Secondary batteries
(lithium; cathodes containing lithium
composite oxides and separators containing polypropylene for
secondary lithium batteries)

IT 7782-42-5, Graphite, uses 9002-88-4, Polyethylene 9003-07-0,
Polypropylene 144419-56-7, Cobalt lithium magnesium oxide
($\text{Co}_{0.95}\text{LiMg}_{0.05}\text{O}_2$) 345664-05-3, Aluminum cobalt lithium oxide
($\text{Al}_{0.01}\text{Co}_{0.99}\text{LiO}_2$) 372491-81-1, Aluminum cobalt lithium
magnesium oxide ($\text{Al}_{0.1}\text{Co}_{0.89}\text{LiMg}_{0.01}\text{O}_2$) 372491-82-2, Aluminum
cobalt lithium magnesium oxide ($\text{Al}_{0.01}\text{Co}_{0.96}\text{LiMg}_{0.03}\text{O}_2$)
372491-83-3, Aluminum cobalt lithium magnesium oxide
($\text{Al}_{0.01}\text{Co}_{0.94}\text{LiMg}_{0.05}\text{O}_2$) 372492-00-7, Aluminum cobalt lithium
magnesium oxide ($\text{Al}_{0.01}\text{Co}_{0.98}\text{LiMg}_{0.01}\text{O}_2$) 478814-69-6, Aluminum
cobalt lithium magnesium oxide ($\text{Al}_{0.05}\text{Co}_{0.9}\text{LiMg}_{0.05}\text{O}_2$)
489431-33-6, Aluminum cobalt lithium oxide ($\text{Al}_{0.01}\text{Co}_{0.98}\text{LiO}_2$)
721448-53-9, Cobalt lithium magnesium oxide ($\text{Co}_{0.94}\text{LiMg}_{0.05}\text{O}_2$)

10/563,124-324074-EIC SEARCH

852333-25-6, Aluminum cobalt lithium magnesium oxide
 (Al_{0.1}Co_{0.85}LiMg_{0.05}O₂) 852333-26-7, Aluminum cobalt lithium
 magnesium oxide (Al_{0.2}Co_{0.79}LiMg_{0.01}O₂) 852333-27-8, Cobalt
 lithium magnesium strontium oxide (Co_{0.94}LiMg_{0.05}Sr_{0.01}O₂)
 852333-28-8, Cobalt lithium magnesium zirconium oxide
 (Co_{0.94}LiMg_{0.05}Zr_{0.01}O₂) 852333-29-0, Calcium cobalt lithium
 magnesium oxide (Ca_{0.01}Co_{0.94}LiMg_{0.05}O₂) 852333-31-4, Barium
 cobalt lithium magnesium oxide (Ba_{0.01}Co_{0.94}LiMg_{0.05}O₂)
 852333-33-6, Cobalt lithium magnesium yttrium oxide
 (Co_{0.94}LiMg_{0.05}Y_{0.01}O₂) 852333-35-8, Aluminum cobalt lithium
 titanium oxide (Al_{0.01}Co_{0.94}LiTi_{0.05}O₂) 852333-37-0, Aluminum
 cobalt lithium zinc oxide (Al_{0.01}Co_{0.94}LiZn_{0.05}O₂) 852333-38-1,
 Aluminum cobalt lithium manganese oxide (Al_{0.01}Co_{0.94}LiMn_{0.05}O₂)
 852333-39-2, Aluminum cobalt lithium magnesium oxide
 (Al_{0.03}Co_{0.92}LiMg_{0.05}O₂) 852333-41-6, Aluminum cobalt lithium
 magnesium oxide (Al_{0.01}Co_{0.91}LiMg_{0.08}O₂) 852333-42-7, Aluminum
 cobalt lithium magnesium oxide (Al_{0.01}Co_{0.84}LiMg_{0.15}O₂)
 852333-43-8, Aluminum cobalt lithium magnesium oxide
 (Al_{0.05}Co_{0.89}LiMg_{0.06}O₂)

RL: DEV (Device component use); USES (Uses)
 (cathodes containing lithium composite oxides and
 separators containing polypropylene for secondary
 lithium batteries)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L75 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:796473 HCAPLUS Full-text

DOCUMENT NUMBER: 141:263471

TITLE: Cathode active
 material for nonaqueous
 electrolyte secondary
 battery

INVENTOR(S): Takahashi, Takeshi; Oba, Takeshi; Fujino,
 Kenji; Tokuno, Junichi; Morizaki, Masuhiro;
 Kondo, Takeyuki; Seyama, Jun

PATENT ASSIGNEE(S): Nichia Corporation, Japan

SOURCE: Eur. Pat. Appl., 54 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1463132	A2	20040929	EP 2004-7076	2004 0324
<--				
EP 1463132	A3	20090401		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
JP 2005050712	A	20050224	JP 2003-282341	2003 0730
<--				
JP 2005123111	A	20050512	JP 2003-358885	2003 1020
<--				
JP 2005190900	A	20050714	JP 2003-432856	2003 1226

10/563,124-324074-EIC SEARCH

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      <--
JP 2004311408      A      20041104      JP 2004-42699
                                         2004
                                         0219

      <--
TW 286849          B      20070911      TW 2004-93105565
                                         2004
                                         0303

      <--
KR 2004084643      A      20041006      KR 2004-17292
                                         2004
                                         0315

      <--
US 20040229123      A1      20041118      US 2004-806206
                                         2004
                                         0323

      <--
CN 1532966          A      20040929      CN 2004-10007990
                                         2004
                                         0325

      <--
CN 100355125      C      20071212
PRIORITY APPLN. INFO.:      JP 2003-83806      A
                                         2003
                                         0325

      <--
      JP 2003-282341      A
                                         2003
                                         0730

      <--
      JP 2003-358885      A
                                         2003
                                         1020

      <--
      JP 2003-432856      A
                                         2003
                                         1226

      <--
ED   Entered STN:  30 Sep 2004
AB   Disclosed is a pos. electrode active material for a nonaq. electrolyte secondary
      battery having at least a lithium-transition metal composite oxide of a layer
      structure, in which an existence ratio of at least one selected from the group
      consisting of elements which may become tetravalent and magnesium is 20% or more on a
      surface of the lithium-transition metal composite oxide. By use of this pos. electrode
      active material, a
      nonaq. electrolyte secondary
      battery having excellent battery characteristics, specifically, having excellent high
      rate characteristics, cycle characteristics, low-temperature characteristics, thermal
      stability, and the like, under the even more harsh environment for use can be realized.
IT   642999-33-5P, Cobalt lithium magnesium zirconium oxide
      756879-33-1P
      RL: DEV (Device component use); SPN (Synthetic preparation); PREP
      (Preparation); USES (Uses)
      (cathode active material for
      nonaq. electrolyte secondary
      battery)
RN   642999-33-5  HCAPLUS
CN   Cobalt lithium magnesium zirconium oxide  (CA INDEX NAME)

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Component	Ratio	Component
		Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

10/563,124-324074-EIC SEARCH

RN 756879-33-1 HCAPLUS

CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2
Al	x	7429-90-5

IC ICM H01M004-48

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST cathode active material
nonaq electrolyte secondary
batteryIT Battery cathodes
Electric vehicles
Secondary batteries
(cathode active material for
nonaq. electrolyte secondary
battery)IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(cathode active material for
nonaq. electrolyte secondary
battery)IT Telephones
(cellular phones; cathode active
material for nonaq. electrolyte
secondary battery)IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(lithiated; cathode active material
for nonaq. electrolyte secondary
battery)IT Secondary batteries
(lithium; cathode active
material for nonaq. electrolyte
secondary battery)IT Computers
(personal; cathode active material
for nonaq. electrolyte secondary
battery)IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(cathode active material for
nonaq. electrolyte secondary
battery)IT 7439-93-2, Lithium, uses 131344-56-4, Cobalt lithium nickel
oxide 177997-13-6, Aluminum cobalt lithium nickel oxide
182442-95-1, Cobalt lithium manganese nickel oxide
RL: DEV (Device component use); USES (Uses)
(cathode active material for
nonaq. electrolyte secondary
battery)IT 116713-67-8P, Cobalt lithium titanium oxide 147683-99-6P, Cobalt
lithium zirconium oxide 187144-48-5P, Cobalt lithium magnesium
oxide 191025-46-4P, Cobalt lithium nickel zirconium oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
756879-33-1P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(cathode active material for

10/563,124-324074-EIC SEARCH

nonaq. electrolyte secondary
battery)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE
THIS RECORD (16 CITINGS)

L75 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:680809 HCAPLUS Full-text

DOCUMENT NUMBER: 141:210081

TITLE: Cathode active
material and nonaqueous
electrolyte secondary
battery

INVENTOR(S): Matsushita, Takuro; Sakamoto, Takako; Eto,
Hiroyasu

PATENT ASSIGNEE(S): Nichia Chemical Industries Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004235144	A	20040819	JP 2003-429625	2003 1225

PRIORITY APPLN. INFO.: <--
JP 2003-5009 A
2003
0110

ED Entered STN: 20 Aug 2004

AB The disclosed cathode active substances are spinel structure Li-transition metal oxides containing alkali or alkaline earth metal. The secondary battery containing the cathode active substances has improved power output and cyclic charge-discharge characteristics. The cathode active material for the nonaq. electrolyte secondary battery which is stated in this invention the alkaline metal and/or is the cathode active material for the nonaq. electrolyte secondary battery which possesses the lithium transition metal compound oxide which consists of the spinel structure which includes the alkaline earths metal. The alkaline metal and/or by the fact that the alkaline earths metal is added, decrease of the diffused resistor of the lithium ion becomes possible, it is thought that output characteristics improve. In addition, in order for crystalline structure of the lithium transition metal compound oxide which consists of spinel structure and furthermore to be stabilized, it is thought that the cycle charge-discharge behavior furthermore improve. It is not.

IT 253868-42-7P, Cobalt lithium magnesium titanium oxide
678158-98-0P, Cobalt hafnium lithium magnesium oxide
678158-99-1P, Cobalt lithium magnesium zirconium oxide
(Co_{0.98}LiMg_{0.01}Zr_{0.01}O₂)
RL: SPN (Synthetic preparation); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(lithium secondary battery
cathode active substance)

RN 253868-42-7 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4

10/563,124-324074-EIC SEARCH

Li | x | 7439-93-2

RN 678158-98-0 HCAPLUS

CN Cobalt hafnium lithium magnesium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Hf	x	7440-58-6
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

RN 678158-99-1 HCAPLUS

CN Cobalt lithium magnesium zirconium oxide (Co0.98LiMg0.01Zr0.01O2)
(CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.01	7440-67-7
Co	0.98	7440-48-4
Mg	0.01	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-58

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq lithium battery

cathode active lithium transition metal oxide

IT Battery cathodes

(alkali or alkaline earth metal-containing lithium transition metal
composite oxides as cathode active
substance for)

IT 198213-69-3P, Cobalt lithium magnesium oxide (Co0.99LiMg0.01O2)

253868-42-7P, Cobalt lithium magnesium titanium oxide

329082-61-3P, Cobalt lithium zirconium oxide (Co0.99LiZr0.01O2)

477700-15-5P, Cobalt lithium oxide (Co0.99LiO2)

678158-98-0P, Cobalt hafnium lithium magnesium oxide

678158-99-1P, Cobalt lithium magnesium zirconium oxide

(Co0.98LiMg0.01Zr0.01O2)

RL: SPN (Synthetic preparation); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)

(lithium secondary battery

cathode active substance)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE
THIS RECORD (3 CITINGS)

L75 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:678453 HCAPLUS Full-text

DOCUMENT NUMBER: 141:210058

TITLE: Nonaqueous electrolyte
secondary battery

INVENTOR(S): Takahashi, Yasufumi; Fujimoto, Hiroyuki;
Kinoshita, Akira; Fujihara, Toyoki; Tode,
Shingo; Nakane, Ikuro; Fujitani, Shin

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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10/563,124-324074-EIC SEARCH

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WO 2004070863      A1      20040819      WO 2004-JP358
                                           2004
                                           0119
                                           <--
W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
    CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
    ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE,
    KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
    MK, MN, MW, MX, MZ, NA, NI, NO
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,
    AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
    HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ,
    CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
JP 2005050779      A      20050224      JP 2003-392395
                                           2003
                                           1121
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JP 4307962          B2      20090805
EP 1598884          A1      20051123      EP 2004-703249
                                           2004
                                           0119
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R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
    MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
    EE, HU, SK
CN 1771619          A      20060510      CN 2004-80003421
                                           2004
                                           0119
                                           <--
CN 100342571        C      20071010
US 20060078795      A1      20060413      US 2005-544210
                                           2005
                                           0802
                                           <--
US 20090208846      A1      20090820      US 2009-385710
                                           2009
                                           0416
                                           <--
PRIORITY APPLN. INFO.:      JP 2003-25761      A
                                           2003
                                           0203
                                           <--
                                           JP 2003-195652      A
                                           2003
                                           0711
                                           <--
                                           JP 2003-392395      A
                                           2003
                                           1121
                                           <--
                                           WO 2004-JP358      W
                                           2004
                                           0119
                                           <--
                                           US 2005-544210      A3
                                           2005
                                           0802
                                           <--

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ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 19 Aug 2004

AB A nonaq. electrolyte secondary battery comprising a pos. electrode containing a pos. electrode active material, a neg. electrode containing a neg. electrode active material, and a nonaq. electrolyte is characterized in that the pos. electrode active material is composed of a lithium transition metal oxide having a layer structure and containing

10/563,124-324074-EIC SEARCH

Li and Co and further contains a group IVA element and group IIA element of the periodic table. The secondary battery shows greatly improved cyclic use lifetime.

IT 253868-42-7P, Cobalt lithium magnesium titanium oxide
 678158-98-0P, Cobalt hafnium lithium magnesium oxide
 678158-99-1P, Cobalt lithium magnesium zirconium oxide
 (Co0.98LiMg0.01Zr0.01O2)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (nonaq. electrolyte secondary battery anode active substance)
 RN 253868-42-7 HCAPLUS
 CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+	=====+	=====+
O	x	17778-80-2
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4
Li	x	7439-93-2

RN 678158-98-0 HCAPLUS
 CN Cobalt hafnium lithium magnesium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+	=====+	=====+
O	x	17778-80-2
Hf	x	7440-58-6
Co	x	7440-48-4
Mg	x	7439-95-4
Li	x	7439-93-2

RN 678158-99-1 HCAPLUS
 CN Cobalt lithium magnesium zirconium oxide (Co0.98LiMg0.01Zr0.01O2)
 (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+	=====+	=====+
O	2	17778-80-2
Zr	0.01	7440-67-7
Co	0.98	7440-48-4
Mg	0.01	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-58
 ICS H01M004-02; H01M010-40; H01M004-62
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte battery
 anode active lithium cobalt oxide
 IT Battery anodes
 (nonaq. lithium battery;
 lithium cobalt oxide type anode active substances for)
 IT 198213-69-3P, Cobalt lithium magnesium oxide (Co0.99LiMg0.01O2)
 253868-42-7P, Cobalt lithium magnesium titanium oxide
 329082-61-3P, Cobalt lithium zirconium oxide (Co0.99LiZr0.01O2)
 477700-15-5P, Cobalt lithium oxide (Co0.99LiO2)
 678158-98-0P, Cobalt hafnium lithium magnesium oxide
 678158-99-1P, Cobalt lithium magnesium zirconium oxide
 (Co0.98LiMg0.01Zr0.01O2)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (nonaq. electrolyte secondary

10/563,124-324074-EIC SEARCH

battery anode active
substance)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE
THIS RECORD (2 CITINGS)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:609797 HCAPLUS Full-text

DOCUMENT NUMBER: 141:108983

TITLE: A highly safe battery pack for
lithium ion secondary
battery

INVENTOR(S): Yoshizawa, Hiroshi; Saito, Koji; Shirasawa,
Katsuyuki; Ohta, Shinji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
Japan

SOURCE: U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20040146775	A1	20040729	US 2003-736536	2003 1217
			<--	
US 7354677	B2	20080408		
JP 2004228045	A	20040812	JP 2003-17918	2003 0127
			<--	
PRIORITY APPLN. INFO.:			JP 2003-17918	A 2003 0127
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 30 Jul 2004

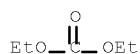
AB A battery pack comprises a lithium ion secondary battery and a current interrupting device for protecting the secondary battery, the secondary battery comprising pos. and neg. electrodes, a separator interposed between the pos. and neg. electrodes and a nonaq. electrolyte, the current interrupting device comprising a recoverable device and a non-recoverable device, the recoverable and non-recoverable devices being connected in series with each other, and the non-recoverable device having an operating temperature of not less than 90° and less than 150°.

IT 105-58-8, Diethyl carbonate

RL: DEV (Device component use); USES (Uses)
(highly safe battery pack for lithium ion
secondary battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



IT 253868-42-7P, Cobalt lithium magnesium titanium oxide

RL: DEV (Device component use); SPN (Synthetic preparation); PREP

10/563,124-324074-EIC SEARCH

(Preparation); USES (Uses)

(highly safe battery pack for lithium ion
secondary battery)

RN 253868-42-7 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4
Li	x	7439-93-2

IC ICM H01M010-50

ICS H01M004-52; H01M010-40

INCL 429061000; 429062000; 429231300; 429231600; 429330000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76ST safe battery pack lithium ion
secondary batteryIT PTCR materials
(device; highly safe battery pack for lithium
ion secondary battery)IT Shape memory alloys
RL: DEV (Device component use); USES (Uses)
(device; highly safe battery pack for lithium
ion secondary battery)IT Circuit breakers
(highly safe battery pack for lithium ion
secondary battery)IT Secondary batteries
(lithium; highly safe battery pack for
lithium ion secondary battery)IT 719276-48-9, Cobalt lithium magnesium oxide Co_{0.94}Li_{1.01}Mg_{0.05}O₂
721430-97-3, Copper lithium magnesium oxide (Cu_{0.94}Li_{1.01}Mg_{0.05}O₂)
RL: DEV (Device component use); USES (Uses)
(Al-doped; highly safe battery pack for
lithium ion secondary battery)IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
7782-42-5, Graphite, uses 14283-07-9, lithium
tetrafluoroborate 21324-40-3, lithium
hexafluorophosphate 187144-48-5, Cobalt lithium magnesium oxide
RL: DEV (Device component use); USES (Uses)
(highly safe battery pack for lithium ion
secondary battery)IT 160152-00-1P, Cobalt lithium oxide CoLi_{1.01}O₂ 180997-14-2P,
Cobalt lithium magnesium nickel oxide 253868-42-7P,
Cobalt lithium magnesium titanium oxide 642999-49-3P, Aluminum
Cobalt lithium magnesium oxide 721430-98-4P, Cobalt lithium
magnesium strontium oxide 721430-99-5P, Calcium cobalt lithium
magnesium oxide
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(highly safe battery pack for lithium ion
secondary battery)OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
THIS RECORD (1 CITINGS)REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:589101 HCAPLUS Full-text

10/563,124-324074-EIC SEARCH

DOCUMENT NUMBER: 141:108973
 TITLE: Method of producing cathode active material for nonaqueous electrolyte secondary battery
 INVENTOR(S): Nagayama, Masatoshi; Yoshizawa, Hiroshi
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 11 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040142241	A1	20040722	US 2004-750861	20040105
US 7157186	B2	20070102	<--	
JP 2004220785	A	20040805	JP 2003-2893	20030109
JP 4274801	B2	20090610	<--	
CN 1518142	A	20040804	CN 2004-10001673	20040109
CN 1258240	C	20060531	<--	
PRIORITY APPLN. INFO.:			JP 2003-2893	A 20030109
			<--	

ED Entered STN: 23 Jul 2004

AB A method of producing a pos. electrode active material for a nonaq. electrolyte secondary battery comprises the steps of: (a) preparing a raw material mixture, comprising "nx" mol of magnesium, "ny" mol of an element M where the element M is at least one selected from the group consisting of Al, Ti, Sr, Mn, Ni and Ca, "n(1-x-y)" mol of cobalt and "nz" mol of lithium, such that the values n, x, y and z satisfy $0 < n$, $0.97 \leq (1/z) \leq 1$, $0.005 \leq x \leq 0.1$, and $0.001 \leq y \leq 0.03$; and (b) baking the raw material mixture in an oxidization atmospheric at 1000 to 1100°.

IT 719276-56-99, Cobalt lithium magnesium titanium oxide (Co0.94Li1.01Mg0.05Ti0.01O2) 719276-57-00, Cobalt lithium magnesium titanium oxide (Co0.93Li1.01Mg0.05Ti0.03O2)
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (method of producing cathode active material for nonaq. electrolyte secondary battery)

RN 719276-56-9 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (Co0.94Li1.01Mg0.05Ti0.01O2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.94	7440-48-4
Ti	0.01	7440-32-6
Mg	0.05	7439-95-4
Li	1.01	7439-93-2

10/563,124-324074-EIC SEARCH

RN 719276-57-0 HCAPLUS
 CN Cobalt lithium magnesium titanium oxide
 (Co0.93Li1.01Mg0.05Ti0.03O2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+	=====+	=====
O	2	17778-80-2
Co	0.93	7440-48-4
Ti	0.03	7440-32-6
Mg	0.05	7439-95-4
Li	1.01	7439-93-2

IC ICM H01M004-52

INCL 429231300

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST cathode active material prepn
 nonaq electrolyte secondary
 battery

IT Secondary batteries
 (lithium; method of producing cathode
 active material for nonaq.
 electrolyte secondary battery)

IT Battery cathodes
 (method of producing cathode active
 material for nonaq. electrolyte
 secondary battery)

IT 141051-66-3P, Cobalt lithium oxide Co0.99Li1.01O2
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (Al- and Mg-doped; method of producing cathode
 active material for nonaq.
 electrolyte secondary battery)

IT 719276-48-9P, Cobalt lithium magnesium oxide
 (Co0.94Li1.01Mg0.05O2) 719276-49-0P, Cobalt lithium magnesium
 oxide (Co0.98Li1.01Mg0.01O2) 719276-50-3P, Cobalt lithium
 magnesium oxide (Co0.98Li1.01Mg0.02O2) 719276-51-4P, Cobalt
 lithium magnesium oxide (Co0.96Li1.01Mg0.03O2) 719276-52-5P,
 Cobalt lithium magnesium oxide (Co0.92Li1.01Mg0.08O2)
 719276-53-6P, Cobalt lithium magnesium oxide (Co0.9Li1.01Mg0.1O2)
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (Al-doped; method of producing cathode active
 material for nonaq. electrolyte
 secondary battery)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 7782-42-5, Graphite, uses 14283-07-9, Lithium tetrafluoroborate
 RL: DEV (Device component use); USES (Uses)
 (method of producing cathode active
 material for nonaq. electrolyte
 secondary battery)

IT 719276-54-7P, Aluminum cobalt lithium magnesium oxide
 (Al0.01Co0.94Li1.01Mg0.05O2) 719276-55-8P, Aluminum cobalt
 lithium magnesium oxide (Al0.03Co0.93Li1.01Mg0.05O2)
 719276-56-9P, Cobalt lithium magnesium titanium oxide
 (Co0.94Li1.01Mg0.05Ti0.01O2) 719276-57-0P, Cobalt
 lithium magnesium titanium oxide (Co0.93Li1.01Mg0.05Ti0.03O2)
 719276-58-1P, Cobalt lithium magnesium strontium oxide
 (Co0.94Li1.01Mg0.05Sr0.01O2) 719276-59-2P, Cobalt lithium
 magnesium strontium oxide (Co0.93Li1.01Mg0.05Sr0.03O2)
 719276-60-5P, Cobalt lithium magnesium manganese oxide
 (Co0.94Li1.01Mg0.05Mn0.01O2) 719276-61-6P, Cobalt lithium
 magnesium manganese oxide (Co0.93Li1.01Mg0.05Mn0.03O2)
 719276-62-7P, Cobalt lithium magnesium nickel oxide
 (Co0.94Li1.01Mg0.05Ni0.01O2) 719276-63-8P, Cobalt lithium
 magnesium nickel oxide (Co0.93Li1.01Mg0.05Ni0.03O2)

10/563,124-324074-EIC SEARCH

719276-64-9P, Calcium cobalt lithium magnesium oxide
(Ca0.01Co0.94Li1.01Mg0.05O2) 719276-65-0P, Calcium cobalt
lithium magnesium oxide (Ca0.03Co0.93Li1.01Mg0.05O2)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(method of producing cathode active
material for nonaq. electrolyte
secondary battery)

IT 7429-90-5, Aluminum, uses 7439-96-5, Manganese, uses
7440-02-0, Nickel, uses 7440-24-6, Strontium, uses 7440-32-6,
Titanium, uses 7440-70-2, Calcium, uses
RL: MOA (Modifier or additive use); USES (Uses)

(method of producing cathode active
material for nonaq. electrolyte
secondary battery)

IT 554-13-2, Lithium carbonate 11113-74-9, Nickel hydroxide
11129-60-5, Manganese oxide 13463-67-7, Titanium oxide,
reactions 18480-07-4, Strontium hydroxide 21645-51-2, Aluminum
hydroxide, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(method of producing cathode active
material for nonaq. electrolyte
secondary battery)

IT 61179-07-5P, Cobalt magnesium hydroxide
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)

(method of producing cathode active
material for nonaq. electrolyte
secondary battery)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE
THIS RECORD (2 CITINGS)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:589100 HCAPLUS Full-text

DOCUMENT NUMBER: 141:126370

TITLE: Cathode active
material for nonaqueous
electrolyte secondary
battery

INVENTOR(S): Nagayama, Masatoshi; Yoshizawa, Hiroshi
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
Japan

SOURCE: U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 20040142240	A1	20040722	US 2004-751920	2004 0107
			<--	
US 7381497	B2	20080603		
JP 2004220952	A	20040805	JP 2003-7916	2003 0116
			<--	
JP 4271448	B2	20090603		
CN 1518145	A	20040804	CN 2004-10002752	2004

10/563,124-324074-EIC SEARCH

0116

CN 1276532 C 20060920 <--
 PRIORITY APPLN. INFO.: JP 2003-7916 A
 2003
 0116

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 ED Entered STN: 23 Jul 2004

AB The invention concerns a pos. electrode active material for a nonaq.
 electrolyte secondary battery, comprising a lithium-containing composite oxide, wherein
 the composite oxide is represented by the general formula: $\text{Li}_z\text{Co}_1\text{-x-yMg}_x\text{Ti}_y\text{O}_2$, the
 element M included in the general formula is at least one selected from the group
 consisting of Al, Ti, Sr, Mn, Ni and Ca, the values x, y and z included in the general
 formula satisfy: (i) $0 \leq z \leq 1.03$; (ii) $0.005 \leq x \leq 0.1$; and (iii) $0.001 \leq y \leq 0.03$, the composite
 oxide has a crystal structure attributed to a hexagonal system in an overcharged state
 having a potential over 4.25 V relative to metallic Li, and a maximum value of an
 oxygen generation peak in a gas chromatograph mass spectrometry measurement of the
 composite oxide in the overcharged state is in the range of 330 to 370°.

IT 253868-42-7, Cobalt lithium magnesium titanium oxide
 719276-56-9, Cobalt lithium magnesium titanium oxide
 $\text{Co}_{0.94}\text{Li}_{1.01}\text{Mg}_{0.05}\text{Ti}_{0.01}\text{O}_2$ 719276-57-0, Cobalt lithium
 magnesium titanium oxide $\text{Co}_{0.93}\text{Li}_{1.01}\text{Mg}_{0.05}\text{Ti}_{0.03}\text{O}_2$
 721448-57-3, Cobalt lithium magnesium titanium oxide
 $(\text{Co}_{0.9}\text{Li}_{1.01}\text{Mg}_{0.05}\text{Ti}_{0.05}\text{O}_2)$
 RL: DEV (Device component use); USES (Uses)
 (cathode active material for
 nonaq. electrolyte secondary
 battery)

RN 253868-42-7 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Ti	x	7440-32-6
Mg	x	7439-95-4
Li	x	7439-93-2

RN 719276-56-9 HCAPLUS

CN Cobalt lithium magnesium titanium oxide
 $(\text{Co}_{0.94}\text{Li}_{1.01}\text{Mg}_{0.05}\text{Ti}_{0.01}\text{O}_2)$ (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.94	7440-48-4
Ti	0.01	7440-32-6
Mg	0.05	7439-95-4
Li	1.01	7439-93-2

RN 719276-57-0 HCAPLUS

CN Cobalt lithium magnesium titanium oxide
 $(\text{Co}_{0.93}\text{Li}_{1.01}\text{Mg}_{0.05}\text{Ti}_{0.03}\text{O}_2)$ (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.93	7440-48-4
Ti	0.03	7440-32-6
Mg	0.05	7439-95-4
Li	1.01	7439-93-2

10/563,124-324074-EIC SEARCH

RN 721448-57-3 HCAPLUS
 CN Cobalt lithium magnesium titanium oxide
 (Co0.9Li1.01Mg0.05Ti0.05O2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.9	7440-48-4
Ti	0.05	7440-32-6
Mg	0.05	7439-95-4
Li	1.01	7439-93-2

IC ICM H01M004-52
 INCL 429231100; 429231300; 429231600; 429231500; 429233000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST cathode active material
 nonaq electrolyte secondary
 battery
 IT Battery cathodes
 (cathode active material for
 nonaq. electrolyte secondary
 battery)
 IT Secondary batteries
 (lithium; cathode active
 material for nonaq. electrolyte
 secondary battery)
 IT 141051-66-3, Cobalt lithium oxide Co0.99Li1.01O2
 RL: DEV (Device component use); USES (Uses)
 (Al- and Mg-doped; cathode active
 material for nonaq. electrolyte
 secondary battery)
 IT 719276-49-0, Cobalt lithium magnesium oxide (Co0.98Li1.01Mg0.01O2)
 719276-50-3, Cobalt lithium magnesium oxide (Co0.98Li1.01Mg0.02O2)
 719276-51-4, Cobalt lithium magnesium oxide (Co0.96Li1.01Mg0.03O2)
 719276-52-5, Cobalt lithium magnesium oxide Co0.92Li1.01Mg0.08O2
 719276-53-6, Cobalt lithium magnesium oxide Co0.9Li1.01Mg0.1O2
 721448-55-1, Cobalt lithium magnesium oxide (Co0.95Li1.01Mg0.05O2)
 RL: DEV (Device component use); USES (Uses)
 (Al-doped; cathode active material
 for nonaq. electrolyte secondary
 battery)
 IT 180997-14-2, Cobalt lithium magnesium nickel oxide
 253868-42-7, Cobalt lithium magnesium titanium oxide
 429678-65-9, Cobalt lithium magnesium manganese oxide
 642999-49-3, Aluminum cobalt lithium magnesium oxide
 719276-48-9, Cobalt lithium magnesium oxide (Co0.94Li1.01Mg0.05O2)
 719276-54-7, Aluminum cobalt lithium magnesium oxide
 Al0.01Co0.94Li1.01Mg0.05O2 719276-55-8, Aluminum cobalt lithium
 magnesium oxide Al0.03Co0.93Li1.01Mg0.05O2 719276-56-9
 , Cobalt lithium magnesium titanium oxide
 Co0.94Li1.01Mg0.05Ti0.01O2 719276-57-0, Cobalt lithium
 magnesium titanium oxide Co0.93Li1.01Mg0.05Ti0.03O2 719276-58-1,
 Cobalt lithium magnesium strontium oxide
 Co0.94Li1.01Mg0.05Sr0.01O2 719276-59-2, Cobalt lithium magnesium
 strontium oxide Co0.93Li1.01Mg0.05Sr0.03O2 719276-60-5, Cobalt
 lithium magnesium manganese oxide Co0.94Li1.01Mg0.05Mn0.01O2
 719276-61-6, Cobalt lithium magnesium manganese oxide
 Co0.93Li1.01Mg0.05Mn0.03O2 719276-62-7, Cobalt lithium magnesium
 nickel oxide Co0.94Li1.01Mg0.05Ni0.01O2 719276-63-8, Cobalt
 lithium magnesium nickel oxide Co0.93Li1.01Mg0.05Ni0.03O2
 719276-64-9, Calcium cobalt lithium magnesium oxide
 Ca0.01Co0.94Li1.01Mg0.05O2 719276-65-0, Calcium cobalt lithium
 magnesium oxide Ca0.03Co0.93Li1.01Mg0.05O2 721430-98-4, Cobalt
 lithium magnesium strontium oxide 721430-99-5, Calcium cobalt
 lithium magnesium oxide 721448-51-7, Cobalt lithium magnesium

10/563,124-324074-EIC SEARCH

oxide (Co0.94Li1.04Mg0.05O2) 721448-52-8, Cobalt lithium
 magnesium oxide (Co0.94Li1.03Mg0.05O2) 721448-53-9, Cobalt
 lithium magnesium oxide (Co0.94LiMg0.05O2) 721448-56-2, Aluminum
 cobalt lithium magnesium oxide (Al0.05Co0.9Li1.01Mg0.05O2)
 721448-57-3, Cobalt lithium magnesium titanium oxide
 (Co0.9Li1.01Mg0.05Ti0.05O2) 721448-58-4, Cobalt lithium
 magnesium strontium oxide (Co0.9Li1.01Mg0.05Sr0.05O2)
 721448-59-5, Cobalt lithium magnesium manganese oxide
 (Co0.9Li1.01Mg0.05Mn0.05O2) 721448-60-8, Cobalt lithium
 magnesium nickel oxide (Co0.9Li1.01Mg0.05Ni0.05O2) 721448-61-9,
 Calcium cobalt lithium magnesium oxide (Ca0.05Co0.9Li1.01Mg0.05O2)
 RL: DEV (Device component use); USES (Uses)
 (cathode active material for
 nonaq. electrolyte secondary
 battery)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
 THIS RECORD (1 CITINGS)
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L75 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2004:533748 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:74296
 TITLE: Nonaqueous electrolyte
 rechargeable battery
 INVENTOR(S): Nagayama, Masatoshi; Yoshizawa, Hiroshi
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
 Japan
 SOURCE: U.S. Pat. Appl. Publ., 9 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 20040126661	A1	20040701	US 2003-730049	2003 1209
			<--	
US 7255963	B2	20070814		
JP 2004207120	A	20040722	JP 2002-376664	2002 1226
			<--	
JP 3844733	B2	20061115		
PRIORITY APPLN. INFO.:			JP 2002-376664	A 2002 1226
			<--	

ED Entered STN: 02 Jul 2004

AB A nonaq. electrolyte rechargeable battery includes: (a) a pos. electrode capable of
 charging and discharging lithium; (b) a neg. electrode capable of charging and
 discharging lithium; (c) a separator or a lithium ion conductive layer interposed
 between the pos. electrode and the neg. electrode; and (d) a lithium ion conductive
 nonaq. electrolyte, wherein the pos. electrode contains a mixture of a first pos.
 electrode active material and a second pos. electrode active material, the first pos.
 electrode active material includes lithium oxide containing manganese, the lithium
 oxide further contains aluminum and/or magnesium, and the second pos. electrode active
 material includes $\text{Li}_x\text{Co}_{1-y}\text{zMg}_y\text{Al}_z\text{O}_2$ where $1 \leq x \leq 1.03$, $0.005 \leq y \leq 0.1$ and
 $0.001 \leq z < 0.02$.

IT 709654-49-9, Cobalt lithium magnesium titanium oxide
 (Co0.94LiMg0.05Ti0.01O2)

10/563,124-324074-EIC SEARCH

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte rechargeable
battery)

RN 709654-49-9 HCAPLUS

CN Cobalt lithium magnesium titanium oxide (Co0.94LiMg0.05Ti0.01O2)
(CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Co	0.94	7440-48-4
Ti	0.01	7440-32-6
Mg	0.05	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-50

INCL 429224000; 429231300; 429231600; 429231100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte rechargeable battery

IT Battery cathodes

Secondary batteries

(nonaq. electrolyte rechargeable
battery)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
7782-42-5, Graphite, uses 21324-40-3, Lithium
hexafluorophosphate 61179-01-9, Aluminum lithium manganese oxide
136479-37-3, Lithium magnesium manganese oxide LiMg0.2Mn1.8O4
142447-12-9, Cobalt lithiummanganese oxide Co0.95LiMn0.05O2
145896-60-2, Aluminum lithium manganese oxide Al0.2LiMn1.8O4
175786-46-6, Lithium magnesium manganese oxide 184092-89-5,
Cobalt lithium titanium oxide Co0.95LiTi0.05O2 186298-17-9,
Aluminum cobalt lithium manganese nickel oxide 193216-10-3,
Aluminum cobalt lithium manganese nickel oxide
Al0.1Co0.1LiMn0.4Ni0.4O2 347175-77-3, Aluminum Lithium magnesium
manganese oxide 372491-83-3, Aluminum cobalt lithium magnesium
oxide Al0.01Co0.94LiMg0.05O2 433969-25-6, Aluminum Cobalt
lithium magnesium manganese nickel oxide 478037-17-1, Cobalt
lithium magnesium manganese nickel oxide 642999-49-3, Aluminum
cobalt lithium magnesium oxide 709654-46-6 709654-47-7,
Aluminum cobalt lithium oxide (Al0.05Co0.9LiO2) 709654-48-8,
Cobalt lithium magnesium manganese oxide (Co0.94LiMg0.05Mn0.01O2)
709654-49-9, Cobalt lithium magnesium titanium oxide
(Co0.94LiMg0.05Ti0.01O2) 709654-50-2, Cobalt lithium manganese
titanium oxide (Co0.95LiMn0.02Ti0.02O2) 709654-51-3, Aluminum
cobalt lithium manganese oxide (Al0.02Co0.95LiMn0.02O2)

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte rechargeable
battery)OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE
THIS RECORD (3 CITINGS)REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:796193 HCAPLUS Full-text

DOCUMENT NUMBER: 139:310049

TITLE: Batteries comprising
alkali-transition metal phosphates and
preferred electrolytes

INVENTOR(S): Pugh, James; Saidi, Mohammed Y.; Huang, Haitao

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 24 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

10/563,124-324074-EIC SEARCH

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 20030190527	A1	20031009	US 2002-116276	2002 0403
CA 2479790	A1	20031016	CA 2003-2479790	2003 0327
WO 2003085757	A1	20031016	WO 2003-US9634	2003 0327
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW</p> <p>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				
AU 2003224801	A1	20031020	AU 2003-224801	2003 0327
EP 1490917	A1	20041229	EP 2003-721492	2003 0327
<p>R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK</p>				
JP 2005522009	T	20050721	JP 2003-582838	2003 0327
CN 1650450	A	20050803	CN 2003-810033	2003 0327
US 20050181283	A1	20050818	US 2005-80605	2005 0315
<p>PRIORITY APPLN. INFO.: US 2002-116276 A</p> <p>WO 2003-US9634 W</p>				

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

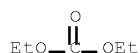
ED Entered STN: 10 Oct 2003

AB ~~Lithium batteries~~ comprising: (a) an ~~electrode~~ comprising a material AaMb(XY4)cZd , wherein (i) A is an alkali metal and $0 < a \leq 9$; (ii) M comprises a transition metal, and $1 \leq b \leq 3$; (iii) XY4 is X'O4-x Y'x, X'O4-yY'2y, X''S4, or mixts. thereof, where X' is P,

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As, Sb, Si, Ge, V, S, or mixts. thereof; X' is P, As, Sb, Si, Ge, V, or mixts. thereof; Y' is halogen, S, N, or mixts. thereof; $0 \leq x < 3$; and $0 < y \leq 2$; and $0 < c \leq 3$; and (iv) Z is OH, halogen, or mixts. thereof, and $0 \leq d \leq 6$; and (b) a counter-electrode; and (c) an electrolyte comprising an alkyl and/or alkylene carbonate and a cyclic ester. Preferably, M addnl. comprises at least one non-transition metal. Preferred embodiments include those having an olivine structure, where $c = 1$, and those having a NASICON structure, where $c = 3$.

IT 105-58-8, Diethyl carbonate
 610310-97-9 610321-55-6
 RL: DEV (Device component use); USES (Uses)
 (batteries comprising alkali-transition metal
 phosphates and preferred electrolytes)
 RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 610310-97-9 HCAPLUS
 CN Cobalt iron lithium magnesium titanium phosphate
 (Co0.8Fe0.1LiMg0.05Ti0.02(PO4)) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4P	1	14265-44-2
Co	0.8	7440-48-4
Ti	0.02	7440-32-6
Mg	0.05	7439-95-4
Li	1	7439-93-2
Fe	0.1	7439-89-6

RN 610321-55-6 HCAPLUS
 CN Cobalt iron lithium magnesium titanium fluoride metaphosphate
 oxide (Co0.8Fe0.1Li1.02Mg0.02Ti0.02F0.02(PO3)O0.98) (CA INDEX
 NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.98	17778-80-2
O3P	1	15389-19-2
F	0.02	14762-94-8
Co	0.8	7440-48-4
Ti	0.02	7440-32-6
Mg	0.02	7439-95-4
Li	1.02	7439-93-2
Fe	0.1	7439-89-6

IC ICM H01M004-58
 INCL 429231900; 429231950; 429221000; 429223000; 429231500; 429224000;
 429231600
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49
 ST lithium battery cathode alkali
 transition metal phosphate
 IT Battery cathodes
 Battery electrolytes
 (batteries comprising alkali-transition metal
 phosphates and preferred electrolytes)
 IT Chalcogenides
 Oxides (inorganic), uses

10/563,124-324074-EIC SEARCH

RL: DEV (Device component use); USES (Uses)
 (~~batteries~~ comprising alkali-transition metal
 phosphates and preferred ~~electrolytes~~)

IT Carbonates, uses

RL: DEV (Device component use); USES (Uses)
 (esters; ~~batteries~~ comprising alkali-transition metal
 phosphates and preferred ~~electrolytes~~)

IT Secondary batteries

(~~lithium~~; ~~batteries~~ comprising
 alkali-transition metal phosphates and preferred
~~electrolytes~~)

IT 57-57-8, β -Propiolactone 96-48-0, γ -Butyrolactone
 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 108-32-7, 1,2-Propylene carbonate 502-44-3,
 ϵ -Caprolactone 542-28-9, δ -Valerolactone
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 2453-03-4, 1,3-Propylene carbonate 4427-90-1, 1,5-Pentylene
 carbonate 4427-94-5, 1,4-Butylene carbonate 4437-70-1,
 2,3-Butylene carbonate 4437-85-8, 1,2-Butylene carbonate
 7440-44-0, Carbon, uses 7550-35-8, Lithium bromide
 (LiBr) 7782-42-5, Graphite, uses 7791-03-9, Lithium
 perchlorate 14024-11-4, Lithium tetrachloroaluminate
 14283-07-9, Lithium tetrafluoroborate 14485-20-2,
 Lithium tetraphenylborate 15365-14-7, Iron
 lithium phosphate FeLiPO_4 21324-40-3, Lithium
 hexafluorophosphate 29935-35-1, Lithium
 hexafluoroarsenate 33454-82-9, Lithium triflate
 90076-65-6 132843-44-8 610271-90-4 610271-94-8 610272-06-5
 610310-87-7 610310-88-8 610310-92-4 610310-95-7
~~610310-97-9~~ 610310-99-1 610311-00-7
~~610321-55-6~~ 610321-60-3 610754-69-3

RL: DEV (Device component use); USES (Uses)
 (~~batteries~~ comprising alkali-transition metal
 phosphates and preferred ~~electrolytes~~)

IT 477779-87-6P, Sodium vanadium fluoride phosphate $\text{NaVF}(\text{PO}_4)$
 484040-01-9P, Iron lithium magnesium fluoride phosphate
 $\text{Fe}_{0.9}\text{Li}_{1.25}\text{Mg}_{0.1}\text{F}_{0.25}(\text{PO}_4)$ 484040-22-4P, Lithium vanadium
 fluoride phosphate $(\text{Li}_6\text{V}_2\text{F}(\text{PO}_4)_3)$ 484040-28-0P 610272-07-6P
 610311-01-8P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (~~batteries~~ comprising alkali-transition metal
 phosphates and preferred ~~electrolytes~~)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE
 THIS RECORD (2 CITINGS)

L75 ANSWER 25 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:773745 HCAPLUS Full-text

DOCUMENT NUMBER: 139:294543

TITLE: Cathode material for
 nonaqueous electrolyte
 electric battery

INVENTOR(S): Sawa, Takao; Kono, Tatsuoki; Matsuno,
 Shinsuke; Takami, Norio

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003282053	A	20031003	JP 2002-84509	

10/563,124-324074-EIC SEARCH

2002

0325

PRIORITY APPLN. INFO.:

<--
JP 2002-84509

2002

0325

<--

ED Entered STN: 03 Oct 2003

AB The title ~~battery~~ is characterized by having good charging capacity, long cycle lifetime, good charging rate, and being able to reach maximum capacity with min. charging/discharging time. The ~~cathode~~ material is a amorphous phase-formed alloy having the following general formula: $AaMbTcXdZe$ or $[AaMbTcXdZe]xLi_y$, where A consists ≥ 1 elements selected from Ca, Sr, and Ba or a composite containing the above elements and alkaline earth metal elements; M consists ≥ 1 elements selected from Ni and Cu; T selected from Si, Al, In, Ge, P, Pb, Bi, Sb, Zn, Ga, and C; X selected from Fe, Co, Mn, Cr, Ti, V, Zr, Nb, Hf, Ta, Mo, W, and rare earth elements; and Z containing elements selected from O, C, H, and N.

IT 609780-97-4

RL: DEV (Device component use); USES (Uses)
(~~cathode~~ material; ~~cathode~~ material for
nonaq. electrolyte elec. battery)

RN 609780-97-4 HCAPLUS

CN Strontium alloy, base, Sr 34, Ba 27, Cu 17, Co 15, Zr 2.4, O 1.9, Si
1.5, Li 1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sr	34	7440-24-6
Ba	27	7440-39-3
Cu	17	7440-50-8
Co	15	7440-48-4
Zr	2.4	7440-67-7
O	1.9	17778-80-2
Si	1.5	7440-21-3
Li	1	7439-93-2

IC ICM H01M004-38

ICS C22C045-04; H01M004-02; H01M004-06; H01M006-16; H01M010-40

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST ~~cathode~~ material nonaq electrolyte
elec battery

IT Alkaline earth metals

Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)
(~~cathode~~ material containing; ~~cathode~~ material
for nonaq. electrolyte elec.
battery)

IT Cathodes

(~~cathode~~ material for nonaq.
electrolyte elec. battery)

IT Primary batteries

(elec.; ~~cathode~~ material for nonaq.
electrolyte elec. battery)

IT 96-49-1, Ethylene carbonate 623-53-0, Methylene carbonate
872-50-4, N-Methyl-2-Pyrrolidone, uses 1333-74-0, Hydrogen, uses
7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-92-1,
Lead, uses 7439-93-2, Lithium, uses 7439-96-5, Manganese, uses
7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1,
Niobium, uses 7440-21-3, Silicon, uses 7440-24-6, Strontium,
uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses
7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3,
Barium, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses
7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3,
Gallium, uses 7440-56-4, Germanium, uses 7440-58-6, Hafnium,

10/563,124-324074-EIC SEARCH

uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses
 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-70-2,
 Calcium, uses 7440-74-6, Indium, uses 7723-14-0, Phosphorus,
 uses 7727-37-9, Nitrogen, uses 7782-42-5, Graphite, uses
 7782-44-7, Oxygen, uses 11099-26-6 21324-40-3, Lithium
 hexafluorophosphate 24937-79-9, PolyfluoroVinylidene
 52627-24-4, Lithium cobalt oxide

RL: DEV (Device component use); USES (Uses)
 (cathode material containing; cathode material
 for nonaq. electrolyte elec.
 battery)

IT	609779-59-1	609779-62-6	609779-64-8	609779-66-0
	609779-68-2	609779-72-8	609779-74-0	609779-76-2
	609779-78-4	609779-80-8	609779-82-0	609779-86-4
	609779-88-6	609779-91-1	609779-96-6	609780-00-9
	609780-03-2	609780-05-4	609780-07-6	609780-10-1
	609780-13-4	609780-15-6	609780-17-8	609780-19-0
	609780-22-5	609780-24-7	609780-26-9	609780-28-1
	609780-32-7	609780-34-9	609780-37-2	609780-40-7
	609780-44-1	609780-47-4	609780-50-9	609780-53-2
	609780-57-6	609780-60-1	609780-63-4	609780-66-7
	609780-69-0	609780-73-6	609780-75-8	609780-78-1
	609780-81-6	609780-83-8	609780-85-0	609780-88-3
	609780-90-7	609780-94-1	609780-97-4	609781-00-2
	609781-02-4	609781-06-8	609781-09-1	609781-12-6
	609781-16-0	609781-19-3	609781-21-7	609781-25-1
	609781-28-4	609781-34-2	609781-38-6	609781-42-2
	609781-45-5	609781-49-9	609781-52-4	609781-57-9
	609781-60-4	609781-63-7	609781-66-0	609781-70-6
	609781-73-9	609781-76-2	609781-79-5	609781-83-1

RL: DEV (Device component use); USES (Uses)
 (cathode material; cathode material for
 nonaq. electrolyte elec. battery)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
 THIS RECORD (1 CITINGS)

L75 ANSWER 26 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:757154 HCAPLUS Full-text

DOCUMENT NUMBER: 139:263344

TITLE: Layered electrodes for lithium cells
 and batteries

INVENTOR(S): Johnson, Christopher S.; Thackeray, Michael
 M.; Vaughey, John T.; Kahaian, Arthur J.; Kim,
 Jeom-soo

PATENT ASSIGNEE(S): The University of Chicago, USA; UChicago
 Argonne, LLC

SOURCE: U.S. Pat. Appl. Publ., 28 pp.
 CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20030180616	A1	20030925	US 2003-365286	2003 0212
			<--	
US 7358009	B2	20080415		
PRIORITY APPLN. INFO.:			US 2002-357393P	P 2002 0215
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
 ED Entered STN: 26 Sep 2003

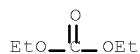
10/563,124-324074-EIC SEARCH

AB Lithium metal oxide compds. of nominal formula Li_2MO_2 , in which M represents two or more pos. charged metal ions, selected predominantly and preferably from the first row of transition metals are disclosed herein. The Li_2MO_2 compds. have a layered-type structure, which can be used as pos. electrodes for lithium electrochem. cells, or as a precursor for the in-situ electrochem. fabrication of LiMO_2 electrodes. The Li_2MO_2 compds. of the invention may have addnl. functions in lithium cells, for example, as end-of-discharge indicators, or as neg. electrodes for lithium cells.

IT 105-58-8, Diethyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (layered electrodes for lithium cells and batteries)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



IT 309242-27-1P, Cobalt lithium magnesium nickel titanium oxide $\text{Co}_{0.15}\text{LiMg}_{0.05}\text{Ni}_{0.75}\text{Ti}_{0.05}\text{O}_2$
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (layered electrodes for lithium cells and batteries)

RN 309242-27-1 HCAPLUS

CN Cobalt lithium magnesium nickel titanium oxide
 ($\text{Co}_{0.15}\text{LiMg}_{0.05}\text{Ni}_{0.75}\text{Ti}_{0.05}\text{O}_2$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Co	0.15	7440-48-4
Ti	0.05	7440-32-6
Ni	0.75	7440-02-0
Mg	0.05	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-48
 ICS H01M004-52; H01M004-50; H01M004-62; C01G045-12; C01G049-02;
 C01G023-04; C01G051-04; C01G053-04

INCL 429231100; X42-923.2; X42-923.12; X42-923.15; X42-922.4;
 X42-922.3; X42-922.1; X42-922.0; X42-359.31; X42-359.42

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49
 lithium battery layered electrode

ST Battery cathodes

IT Battery cathodes
 Battery electrodes
 (layered electrodes for lithium cells and batteries)

IT Metals
 Oxides (inorganic)
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (layered electrodes for lithium cells and batteries)

IT Intermetallic compounds
 Nitrides
 RL: DEV (Device component use); USES (Uses)
 (layered electrodes for lithium cells and batteries)

IT Inorganic compounds
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP

10/563,124-324074-EIC SEARCH

(Preparation); USES (Uses)

(layered; layered electrodes for lithium cells and batteries)

IT Secondary batteries

(lithium; layered electrodes for lithium cells and batteries)

IT 109-72-8, n-Butyllithium, processes 546-68-9 1310-66-3, Lithium hydroxide monohydrate 7308-67-0, Lithium naphthalide, processes 7439-93-2, Lithium, processes 7440-44-0, Carbon, processes 7782-42-5, Graphite, processes 244129-80-4, Manganese nickel hydroxide $\text{Mn}_{0.5}\text{Ni}_{0.5}(\text{OH})_2$
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(layered electrodes for lithium cells and batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
 (layered electrodes for lithium cells and batteries)

IT 12031-65-1P, Lithium nickel oxide LiNiO_2 12162-79-7P, Lithium manganese oxide LiMnO_2 12190-79-3P, Cobalt lithium oxide CoLiO_2 13824-63-0P, Cobalt lithium phosphate CoLiPO_4 13826-59-0P, Lithium manganese phosphate LiMnPO_4 15365-14-7P, Iron lithium phosphate FeLiPO_4 128975-24-6DP, Lithium manganese nickel oxide $\text{LiMn}_{0.5}\text{Ni}_{0.5}\text{O}_2$, Li intercalated 128975-24-6P, Lithium manganese nickel oxide $\text{LiMn}_{0.5}\text{Ni}_{0.5}\text{O}_2$ 176087-62-0P, Lithium manganese oxide $\text{LiLi}_{1.33}\text{Mn}_{1.67}\text{O}_4$ 193214-24-3P, Aluminum cobalt lithium nickel oxide $\text{Al}_{0.05}\text{Co}_{0.15}\text{LiNi}_{0.8}\text{O}_2$ 309242-27-1P, Cobalt lithium magnesium nickel titanium oxide $\text{Co}_{0.15}\text{LiMg}_{0.05}\text{Ni}_{0.75}\text{Ti}_{0.05}\text{O}_2$ 346417-97-8P, Cobalt lithium manganese nickel oxide $\text{Co}_{0.33}\text{LiMn}_{0.33}\text{Ni}_{0.33}\text{O}_2$ 448897-02-7DP, Lithium manganese nickel titanium oxide $\text{Li}_{1.02}\text{Mn}_{0.46}\text{Ni}_{0.46}\text{Ti}_{0.05}\text{O}_2$, Li intercalated 448897-02-7P, Lithium manganese nickel titanium oxide $\text{Li}_{1.02}\text{Mn}_{0.46}\text{Ni}_{0.46}\text{Ti}_{0.05}\text{O}_2$ 602319-07-3P, Lithium manganese nickel titanium oxide ($\text{Li}_{2.02}\text{Mn}_{0.46}\text{Ni}_{0.46}\text{Ti}_{0.05}\text{O}_2$)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(layered electrodes for lithium cells and batteries)

IT 7664-41-7, Ammonia, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(lithium solution; layered electrodes for lithium cells and batteries)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L75 ANSWER 27 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:219342 HCAPLUS Full-text

DOCUMENT NUMBER: 138:257830

TITLE: Cathode active mass and secondary lithium battery

INVENTOR(S): Takeuchi, Hajime; Endo, Shota; Amanomiya, Kazuki; Tanaka, Hiromasa; Sakai, Akira; Shirakawa, Yasuhiro; Oya, Yasumasa

PATENT ASSIGNEE(S): Toshiba Corp., Japan; Toshiba Electronic Engineering Corp.

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

10/563,124-324074-EIC SEARCH

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003086181	A	20030320	JP 2001-275080	2001 0911

PRIORITY APPLN. INFO.: JP 2001-275080

2001
0911

ED Entered STN: 20 Mar 2003

AB The active mass comprises a hexagonal structured oxide: $\text{Li}_x\text{Co}_{1-y}\text{M}'\text{yO}_2$ or $\text{Li}_x\text{Co}_{1-y}\text{M}'\text{yO}_{2-y}$ (M is ≥ 1 metal element having ion radius larger than Co^{3+} and average valence of 3; M' is ≥ 1 metal element having ion radius larger than Co^{3+} and average valence of 2; $x = 0.4-2.0$; $0 < y \leq 0.2$). The battery has a cathode containing the above described active mass, an anode, a separator between the 2 electrodes in a battery case, and an electrolyte filled inside the battery case.

IT 502616-40-2, Cobalt lithium magnesium titanium oxide ($\text{Co}_{0.8}\text{LiMg}_{0.1}\text{Ti}_{0.1}\text{O}_2$) 502616-41-3, Calcium cobalt lithium zirconium oxide ($\text{Ca}_{0.1}\text{Co}_{0.8}\text{LiZr}_{0.1}\text{O}_2$) 502616-42-4, Cobalt hafnium lithium magnesium oxide ($\text{Co}_{0.8}\text{Hf}_{0.1}\text{LiMg}_{0.1}\text{O}_2$)

RL: DEV (Device component use); USES (Uses)
(comps. of cathodes containing lithium cobalt composite oxides for secondary lithium batteries)

RN 502616-40-2 HCAPLUS

CN Cobalt lithium magnesium titanium oxide ($\text{Co}_{0.8}\text{LiMg}_{0.1}\text{Ti}_{0.1}\text{O}_2$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.8	7440-48-4
Ti	0.1	7440-32-6
Mg	0.1	7439-95-4
Li	1	7439-93-2

RN 502616-41-3 HCAPLUS

CN Calcium cobalt lithium zirconium oxide ($\text{Ca}_{0.1}\text{Co}_{0.8}\text{LiZr}_{0.1}\text{O}_2$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ca	0.1	7440-70-2
Zr	0.1	7440-67-7
Co	0.8	7440-48-4
Li	1	7439-93-2

RN 502616-42-4 HCAPLUS

CN Cobalt hafnium lithium magnesium oxide ($\text{Co}_{0.8}\text{Hf}_{0.1}\text{LiMg}_{0.1}\text{O}_2$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Hf	0.1	7440-58-6
Co	0.8	7440-48-4

10/563,124-324074-EIC SEARCH

Mg		0.1		7439-95-4
Li		1		7439-93-2

IC ICM H01M004-58
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery cathode
lithium cobalt composite oxide compn
IT Battery cathodes
(comps. of cathodes containing lithium cobalt composite
oxides for secondary lithium
batteries)
IT 221332-84-9, Cobalt gallium lithium oxide (Co0.9Ga0.1LiO2)
502616-36-6, Cobalt lithium magnesium fluoride oxide
(Co0.9LiMg0.1F0.1O1.9) 502616-37-7, Cobalt lithium magnesium
fluoride oxide (Co0.8LiMg0.2F0.2O1.8) 502616-38-8, Cobalt indium
lithium oxide (Co0.8In0.2LiO2) 502616-39-9, Cobalt lithium
thallium oxide (Co0.9LiTl0.1O2) 502616-40-2, Cobalt
lithium magnesium titanium oxide (Co0.8LiMg0.1Ti0.1O2)
502616-41-3, Calcium cobalt lithium zirconium oxide
(Ca0.1Co0.8LiZr0.1O2) 502616-42-4, Cobalt hafnium
lithium magnesium oxide (Co0.8Hf0.1LiMg0.1O2)
RL: DEV (Device component use); USES (Uses)
(comps. of cathodes containing lithium cobalt composite
oxides for secondary lithium
batteries)
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
THIS RECORD (1 CITINGS)

L75 ANSWER 28 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2003:173992 HCAPLUS Full-text
DOCUMENT NUMBER: 138:224204
TITLE: Battery
INVENTOR(S): Adachi, Momoe; Fujita, Shigeru; Endo, Takuya;
Iwakoshi, Yasunobu; Shibamoto, Goro
PATENT ASSIGNEE(S): Sony Corporation, Japan
SOURCE: PCT Int. Appl., 162 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003019713	A1	20030306	WO 2002-JP8498	2002 0823
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W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
EP 1443584	A1	20040804	EP 2002-762828	2002 0823
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
CN 1557036	A	20041222	CN 2002-818384	2002 0823
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CN 1314159	C	20070502		
CN 1770542	A	20060510	CN 2005-10113835	2002 0823

10/563,124-324074-EIC SEARCH

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CN 100448095      C      20081231
CN 1770543      A      20060510      CN 2005-10113836
                                           2002
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CN 100446336      C      20081224
KR 2010004115      A      20100112      KR 2009-724824
                                           2002
                                           0823

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US 20040234853      A1      20041125      US 2004-486635
                                           2004
                                           0211

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US 7510803      B2      20090331
PRIORITY APPLN. INFO.:      JP 2001-254547      A
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                                           0824

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                                CN 2002-818384      A3
                                           2002
                                           0823

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                                WO 2002-JP8498      W
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                                           0823

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                                KR 2004-702675      A3
                                           2004
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ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 07 Mar 2003

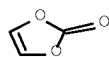
AB The battery has a cathode, containing a Li composite oxide active mass having Li and/or Ni and O, an anode containing a Li intercalating material and/or Li in its active mass, and an electrolyte-impregnated separator in between; where the battery has charging voltage ≥ 4.25 V, and a total amount of Li carbonate and Li sulfate is 1.0 mass % of the cathode active mass. Preferably, the electrolyte has the concentration of a proton impurity ≤ 20 ppm and water ≤ 20 ppm.

IT 872-36-6, Vinylene carbonate
500868-02-0

RL: DEV (Device component use); USES (Uses)
(secondary lithium batteries
containing electrolytes, Li or Li-intercalating
anodes and Li composite oxide cathodes with
controlled concentration of Li_2CO_3 and Li_2SO_4)

RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 500868-02-0 HCAPLUS

CN Cobalt lithium magnesium nickel titanium oxide
($\text{Co}_{0.3}\text{LiMg}_{0.05}\text{Ni}_{0.5}\text{Ti}_{0.15}\text{O}_2$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.3	7440-48-4

10/563,124-324074-EIC SEARCH

Ti		0.15		7440-32-6
Ni		0.5		7440-02-0
Mg		0.05		7439-95-4
Li		1		7439-93-2

IC ICM H01M010-40
ICS H01M004-02; H01M004-58; H01M004-40; H01M004-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery structure
high charging voltage energy d

IT Secondary batteries
(lithium; secondary lithium
batteries containing electrolytes, Li or
Li-intercalating anodes and Li composite oxide
cathodes with controlled concentration of Li₂CO₃ and Li₂SO₄)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 12668-36-9
RL: DEV (Device component use); USES (Uses)
(anode; secondary lithium
batteries containing electrolytes, Li or
Li-intercalating anodes and Li composite oxide
cathodes with controlled concentration of Li₂CO₃ and Li₂SO₄)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
RL: DEV (Device component use); USES (Uses)
(cathode; secondary lithium
batteries containing electrolytes, Li or
Li-intercalating anodes and Li composite oxide
cathodes with controlled concentration of Li₂CO₃ and Li₂SO₄)

IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium
tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
90076-65-6 132843-44-8
RL: DEV (Device component use); USES (Uses)
(electrolyte; secondary lithium
batteries containing electrolytes, Li or
Li-intercalating anodes and Li composite oxide
cathodes with controlled concentration of Li₂CO₃ and Li₂SO₄)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
872-36-6, Vinylene carbonate
4427-96-7, Vinyl ethylene carbonate 12031-65-1, Lithium nickel
oxide (LiNiO₂) 113066-92-5, Cobalt lithium nickel oxide
(Co_{0.9}LiNi_{0.1}O₂) 118557-79-2, Cobalt iron lithium oxide (Co_{0.9}Fe
0.1LiO₂) 128975-24-6, Lithium manganese nickel oxide
(LiMn_{0.5}Ni_{0.5}O₂) 185746-84-3, Aluminum lithium magnesium nickel
oxide (Al_{0.05}LiMg_{0.05}Ni_{0.9}O₂) 202916-35-6, Chromium cobalt
lithium nickel oxide (Cr_{0.05}Co_{0.2}LiNi_{0.75}O₂) 287718-97-2,
Aluminum lithium manganese nickel oxide (Al_{0.05}LiMn_{0.05}Ni_{0.9}O₂)
346417-97-8, Cobalt lithium manganese nickel oxide
(Co_{0.33}LiMn_{0.33}Ni_{0.33}O₂) 364589-12-8, Aluminum cobalt lithium
titanium oxide (Al_{0.05}Co_{0.9}LiTi_{0.05}O₂) 475637-37-7, Aluminum
cobalt lithium nickel oxide (Al_{0.05}Co_{0.8}LiNi_{0.15}O₂) 478814-69-6,
Aluminum cobalt lithium magnesium oxide (Al_{0.05}Co_{0.9}LiMg_{0.05}O₂)
500867-92-5, Cobalt lithium magnesium manganese oxide
(Co_{0.8}LiMg_{0.05}Mn_{0.15}O₂) 500867-93-6, Aluminum iron lithium
nickel oxide (Al_{0.15}Fe_{0.05}LiNi_{0.8}O₂) 500867-94-7, Aluminum
cobalt lithium nickel oxide (Al_{0.2}Co_{0.3}LiNi_{0.5}O₂) 500867-98-1,
Cobalt lithium magnesium nickel oxide (Co_{0.45}LiMg_{0.05}Ni_{0.5}O₂)
500867-99-2, Cobalt lithium nickel titanium oxide
(Co_{0.35}LiNi_{0.6}Ti_{0.05}O₂) 500868-00-8, Cobalt iron lithium nickel
oxide (Co_{0.25}Fe_{0.1}LiNi_{0.65}O₂) 500868-01-9 500868-02-0
500868-03-1 500868-04-2 500868-05-3 500868-09-7
500868-10-0 500868-11-1 500868-12-2
RL: DEV (Device component use); USES (Uses)
(secondary lithium batteries
containing electrolytes, Li or Li-intercalating
anodes and Li composite oxide cathodes with
controlled concentration of Li₂CO₃ and Li₂SO₄)

10/563,124-324074-EIC SEARCH

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE
THIS RECORD (2 CITINGS)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 29 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:116804 HCAPLUS Full-text

DOCUMENT NUMBER: 138:173308

TITLE: Electrode-active
material for lithium
secondary battery

INVENTOR(S): Ishida, Yuko; Okahara, Kenji

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003045424	A	20030214	JP 2001-227003	2001 0727

PRIORITY APPLN. INFO.: <--
JP 2001-227003
2001
0727

ED Entered STN: 14 Feb 2003
AB The ~~electrode-active material~~ comprises components A, B, and C, where A is a layer composite oxide of ≥ 2 of Li and transition metals (such as Ni, Mn, and Co); B is a carbonaceous material with BET sp. surface area (SSAB) 50-2000 m²/g; and C is a binder. Preferably, the composite oxide has a BET sp. surface area (SSAA) of 0.1-10 m²/g; $25 \leq (\text{SSAB})/(\text{SSAA})^{1/2} \leq 900$; A can be represented by $\text{Li}_x\text{Ni}_y\text{Mn}_z\text{Co}_w\text{Q}_z\text{O}_2$, where $0.8 \leq x \leq 1.2$, $0 \leq w$, x , and $y \leq 2$, $0 \leq z \leq 0.3$, $0.8 \leq w + x + y + z \leq 1.2$, Q = Be, B, Mg, Al, Ca, Sc, Ti, V, Cr, Fe, Cu, Zn, or Ga. Preferably, $0.7 \leq w/x \leq 9$; and the ~~electrode-active material~~ comprises A 10-99, B 0.01-50, and C 0.1-80 weight%. The battery comprises pos. ~~electrode~~, neg. ~~electrode~~, and electrolyte.

IT 496861-40-6F

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(~~electrode-active material~~
containing; ~~electrode-active material~~
for lithium secondary battery)

RN 496861-40-6 HCAPLUS

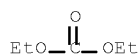
CN Aluminum beryllium boron calcium chromium cobalt copper gallium
iron lithium magnesium manganese nickel scandium titanium vanadium
zinc oxide ((Al,Be,B,Ca,Cr,Cu,Ga,Fe,Mg,Sc,Ti,V,Zn)0.3(Co,Mn,Ni)1.2
Li0.8-1.2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Ca	0 - 0.3	7440-70-2
Zn	0 - 0.3	7440-66-6
V	0 - 0.3	7440-62-2
Ga	0 - 0.3	7440-55-3
Cu	0 - 0.3	7440-50-8
Co	0 - 1.2	7440-48-4
Cr	0 - 0.3	7440-47-3
B	0 - 0.3	7440-42-8

10/563,124-324074-EIC SEARCH

Be		0 - 0.3		7440-41-7
Ti		0 - 0.3		7440-32-6
Sc		0 - 0.3		7440-20-2
Ni		0 - 1.2		7440-02-0
Mn		0 - 1.2		7439-96-5
Mg		0 - 0.3		7439-95-4
Li		0.8 - 1.2		7439-93-2
Fe		0 - 0.3		7439-89-6
Al		0 - 0.3		7429-90-5

IT 105-58-8, Diethyl carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte containing; for manufacture of lithium
 secondary battery)
 RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



IC ICM H01M004-58
 ICS H01M004-02; H01M004-62; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 45, 57, 76
 ST electrode active material coating
 lithium secondary battery; lithium
 nickel manganese cobalt oxide electrode active
 material; acetylene black polyvinylidene fluoride
 electrode active material;
 tetrafluoroethylene graphite Ketjen Black EC electrode
 active material; ethylene carbonate
 diethyl carbonate electrolyte
 battery; lithium hexafluorophosphate
 electrolyte battery
 IT Fluoropolymers, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (binder; for manufacture of electrode-active
 material for lithium secondary
 battery)
 IT Carbon black, uses
 Graphitized carbon black
 RL: TEM (Technical or engineered material use); USES (Uses)
 (elec. conducting agent, electrode-active
 material containing; for manufacture of electrode-
 active material for lithium
 secondary battery)
 IT Secondary batteries
 (lithium; manufacture of electrode-
 active material for lithium
 secondary battery)
 IT Coating materials
 Collecting apparatus
 Electrodes
 (manufacture of electrode-active
 material for lithium secondary
 battery)
 IT 872-50-4, N-Methylpyrrolidone, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (additive; for manufacture of electrode-active
 material for lithium secondary
 battery)
 IT 116-14-3, Tetrafluoroethylene, uses 24937-79-9, Polyvinylidene

10/563,124-324074-EIC SEARCH

fluoride

RL: NUU (Other use, unclassified); USES (Uses)
 (binder; for manufacture of electrode-active
 material for lithium secondary
 battery)

IT 128975-24-6P, Lithium manganese nickel oxide (Li₂MnNiO₄)
 496861-40-6P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (electrode-active material
 containing; electrode-active material
 for lithium secondary battery)

IT 346417-97-8P, Cobalt lithium manganese nickel oxide
 (Co_{0.33}LiMn_{0.33}Ni_{0.33}O₂)

RL: PNU (Preparation, unclassified); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (electrode-active material
 containing; for manufacture of electrode-active
 material for lithium secondary
 battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 21324-40-3, Lithium hexafluorophosphate
 (LiPF₆)

RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte containing; for manufacture of lithium
 secondary battery)

IT 7782-42-5P, Graphite, uses

RL: PNU (Preparation, unclassified); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (neg. electrode-active
 material containing; for manufacture of lithium
 secondary battery)

IT 1310-66-3, Lithium hydroxide (LiOH) monohydrate 1317-34-6,
 Manganese oxide (Mn₂O₃) 12054-48-7, Nickel hydroxide (Ni(OH)₂)
 21041-93-0, Cobalt hydroxide (Co(OH)₂)

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC
 (Process); USES (Uses)
 (starting material; for manufacture of electrode-
 active material for lithium
 secondary battery)

L75 ANSWER 30 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:116796 HCAPLUS Full-text

DOCUMENT NUMBER: 138:156280

TITLE: Electrode-active
 material coated electrode
 for lithium secondary
 battery

INVENTOR(S): Ishida, Yuko; Okahara, Kenji

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003045414	A	20030214	JP 2001-227002	

2001
0727

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PRIORITY APPLN. INFO.: JP 2001-227002

2001

<--

ED Entered STN: 14 Feb 2003

AB The surface of the ~~electrode~~ collector is coated with a layer of ~~electrode active material~~ having d. of 2-2.7 g/cm³ and containing components A, B, and C, where A is a layer composite oxide of ≥ 2 of Li and transition metals (Ni, Mn, Co, etc...); B is an elec. conducting agent; and C is a binder. A can be represented by $\text{Li}_v\text{Ni}_w\text{Mn}_x\text{Co}_y\text{Zn}_z\text{O}_2$, where $0.8 \leq v \leq 1.2$, $0 \leq w, x, \text{ and } y \leq 2$, $0 \leq z \leq 0.3$, $0.8 \leq w + x + y + z \leq 1.2$, Q = Be, B, Mg, Al, Ca, Sc, Ti, V, Cr, Fe, Cu, Zn, or Ga. Preferably, $0.7 \leq w/x \leq 9$; and the ~~electrode active material~~ comprises A 10-99, B 0.01-50, and C 0.1-80 weight%. The ~~battery~~ comprises pos. ~~electrode~~, neg. ~~electrode~~, and ~~electrolyte~~.

IT 496861-40-6P
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (electrode-active material
 containing; electrode-active material
 coated electrode for lithium
 secondary battery)

RN 496861-40-6 HCAPLUS

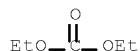
CN Aluminum beryllium boron calcium chromium cobalt copper gallium
 iron lithium magnesium manganese nickel scandium titanium vanadium
 zinc oxide ((Al, Be, B, Ca, Cr, Cu, Ga, Fe, Mg, Sc, Ti, V, Zn) 0.3 (Co, Mn, Ni) 1.2
 Li 0.8-1.202) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Ca	0 - 0.3	7440-70-2
Zn	0 - 0.3	7440-66-6
V	0 - 0.3	7440-62-2
Ga	0 - 0.3	7440-55-3
Cu	0 - 0.3	7440-50-8
Co	0 - 1.2	7440-48-4
Cr	0 - 0.3	7440-47-3
B	0 - 0.3	7440-42-8
Be	0 - 0.3	7440-41-7
Ti	0 - 0.3	7440-32-6
Sc	0 - 0.3	7440-20-2
Ni	0 - 1.2	7440-02-0
Mn	0 - 1.2	7439-96-5
Mg	0 - 0.3	7439-95-4
Li	0.8 - 1.2	7439-93-2
Fe	0 - 0.3	7439-89-6
Al	0 - 0.3	7429-90-5

IT 105-58-8, Diethyl carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte containing; for manufacture of lithium
 secondary battery)

RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



IC ICM H01M004-02
 ICS C01G053-00; H01M004-58; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 45, 57, 76

ST ~~electrode active material coating~~

lithium secondary battery; lithium
 nickel manganese cobalt oxide electrode active
 material; acetylene black polyvinylidene fluoride
 electrode active material; ethylene
 carbonate diethyl carbonate
 electrolyte battery; lithium
 hexafluorophosphate electrolyte battery

- IT Fluoropolymers, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (binder; for manufacture of electrode-active
 material coated electrode for lithium
 secondary battery)
- IT Carbon black, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (elec. conducting agent, electrode-active
 material containing; for manufacture of electrode-
 active material coated electrode
 for lithium secondary battery)
- IT Coating materials
 Collecting apparatus
 Electrodes
 (electrode-active material coated
 electrode for lithium secondary
 battery)
- IT Secondary batteries
 (lithium; electrode-active
 material coated electrode for lithium
 secondary battery)
- IT 872-50-4, N-Methylpyrrolidone, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (additive; for manufacture of electrode-active
 material coated electrode for lithium
 secondary battery)
- IT 24937-79-9, Polyvinylidene fluoride
 RL: NUU (Other use, unclassified); USES (Uses)
 (binder; for manufacture of electrode-active
 material coated electrode for lithium
 secondary battery)
- IT 405890-05-3P, Cobalt lithium manganese nickel oxide
 (Co_{0.1}LiMn_{0.45}Ni_{0.45}O₂) 496861-40-6P
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (electrode-active material
 containing; electrode-active material
 coated electrode for lithium
 secondary battery)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 21324-40-3, Lithium hexafluorophosphate
 (LiPF₆)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte containing; for manufacture of lithium
 secondary battery)
- IT 1310-66-3, Lithium hydroxide (LiOH) monohydrate 1317-34-6,
 Manganese oxide (Mn₂O₃) 12054-48-7, Nickel hydroxide (Ni(OH)₂)
 21041-93-0, Cobalt hydroxide (Co(OH)₂)
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC
 (Process); USES (Uses)
 (starting material; for manufacture of electrode-
 active material coated electrode
 for lithium secondary battery)

L75 ANSWER 31 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2002:752479 HCAPLUS Full-text
 DOCUMENT NUMBER: 137:281841
 TITLE: Cathode active
 material for nonaqueous

10/563,124-324074-EIC SEARCH

electrolyte secondary
 battery
 INVENTOR(S): Morishima, Hideaki; Yamada, Shuji; Kanai,
 Hideyuki
 PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan
 SOURCE: Eur. Pat. Appl., 29 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1246290	A2	20021002	EP 2002-252168	2002 0326
<--				
EP 1246290	A3	20031119		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2378278	A1	20020926	CA 2002-2378278	2002 0322
<--				
CA 2378278	C	20081118		
US 20030054253	A1	20030320	US 2002-102705	2002 0322
<--				
US 6984470	B2	20060110		
JP 2002358965	A	20021213	JP 2002-87051	2002 0326
<--				
JP 3615196	B2	20050126		
US 20060029865	A1	20060209	US 2005-244042	2005 1006
<--				
US 7642014	B2	20100105		
PRIORITY APPLN. INFO.:			JP 2001-87038	A 2001 0326
<--				
			US 2002-102705	A3 2002 0322
<--				

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 04 Oct 2002

AB The present invention provides a pos. electrode active material containing a lithium-containing composite metal oxide having a composition represented by: LiMgxMl-xPO_4 where M is at least one kind of an element selected from the group consisting of Co and Ni, and the molar ratio x is larger than 0.5 and smaller than 0.75, i.e., $0.5 < x < 0.75$.

IT 464172-20-1P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (cathode active material for
 nonaq. electrolyte secondary
 battery)

RN 464172-20-1 HCAPLUS

CN Cobalt lithium magnesium titanium oxide phosphate
 ($\text{Co}_{0.9}\text{LiMg}_{0.05}\text{Ti}_{0.100.2}(\text{PO}_4)_{0.95}$) (CA INDEX NAME)

10/563,124-324074-EIC SEARCH

Component	Ratio	Component
		Registry Number
=====	=====	=====
O	0.2	17778-80-2
O4P	0.95	14265-44-2
Co	0.9	7440-48-4
Ti	0.1	7440-32-6
Mg	0.05	7439-95-4
Li	1	7439-93-2

IC ICM H01M010-40
ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery cathode
active material

IT Battery cathodes
(cathode active material for
nonaq. electrolyte secondary
battery)

IT Secondary batteries
(lithium; cathode active
material for nonaq. electrolyte
secondary battery)

IT 464171-95-7P, Cobalt lithium magnesium phosphate
(Co_{0.45}LiMg_{0.55}(PO₄)) 464171-96-8P, Cobalt lithium magnesium
phosphate (Co_{0.3}LiMg_{0.7}(PO₄)) 464171-97-9P, Lithium magnesium
nickel phosphate (LiMg_{0.55}Ni_{0.45}(PO₄)) 464171-98-0P, Lithium
magnesium nickel phosphate (LiMg_{0.7}Ni_{0.3}(PO₄)) 464171-99-1P,
Cobalt lithium magnesium phosphate (Co_{0.85}Li_{1.1}Mg_{0.05}(PO₄))
464172-00-7P, Lithium magnesium nickel phosphate
(Li_{1.1}Mg_{0.05}Ni_{0.85}(PO₄)) 464172-01-8P, Cobalt lithium titanium
phosphate (Co_{0.85}Li_{1.1}Ti_{0.05}(PO₄)) 464172-02-9P, Lithium nickel
titanium phosphate (Li_{1.1}Ni_{0.85}Ti_{0.05}(PO₄)) 464172-03-0P, Cobalt
lithium vanadium phosphate (Co_{0.85}Li_{1.1}V_{0.05}(PO₄)) 464172-04-1P,
Lithium nickel vanadium phosphate (Li_{1.1}Ni_{0.85}V_{0.05}(PO₄))
464172-05-2P, Chromium cobalt lithium phosphate
(Cr_{0.05}Co_{0.85}Li_{1.1}(PO₄)) 464172-06-3P, Chromium lithium nickel
phosphate (Cr_{0.05}Li_{1.1}Ni_{0.85}(PO₄)) 464172-07-4P, Cobalt lithium
manganese phosphate (Co_{0.85}Li_{1.1}Mn_{0.05}(PO₄)) 464172-08-5P,
Lithium manganese nickel phosphate (Li_{1.1}Mn_{0.05}Ni_{0.85}(PO₄))
464172-09-6P, Cobalt iron lithium phosphate
(Co_{0.85}Fe_{0.05}Li_{1.1}(PO₄)) 464172-10-9P, Iron lithium nickel
phosphate (Fe_{0.05}Li_{1.1}Ni_{0.85}(PO₄)) 464172-11-0P, Cobalt copper
lithium phosphate (Co_{0.85}Cu_{0.05}Li_{1.1}(PO₄)) 464172-12-1P, Copper
lithium nickel phosphate (Cu_{0.05}Li_{1.1}Ni_{0.85}(PO₄)) 464172-13-2P,
Cobalt lithium zirconium phosphate (Co_{0.85}Li_{1.1}Zr_{0.05}(PO₄))
464172-14-3P, Lithium nickel zirconium phosphate
(Li_{1.1}Ni_{0.85}Zr_{0.05}(PO₄)) 464172-16-5P, Aluminum cobalt lithium
phosphate (Al_{0.05}Co_{0.85}Li_{1.1}(PO₄)) 464172-17-6P, Aluminum
lithium nickel phosphate (Al_{0.05}Li_{1.1}Ni_{0.85}(PO₄)) 464172-18-7P
464172-19-8P 464172-20-1P 464172-21-2P
464172-22-3P 464172-23-4P 464172-24-5P 464172-25-6P
464172-26-7P 464172-27-8P 464172-28-9P 464172-29-0P
464172-30-3P 464172-31-4P 464172-32-5P 464172-33-6P
464172-34-7P 464172-35-8P 464172-36-9P 464172-37-0P
464172-38-1P 464172-39-2P 464172-40-5P 464172-41-6P
464172-42-7P 464172-43-8P 464172-44-9P 464172-45-0P
464172-46-1P 464172-47-2P 464172-48-3P 464172-49-4P
464172-50-7P 464172-51-8P 464172-52-9P 464172-53-0P
464172-54-1P 464172-55-2P 464172-56-3P 464172-57-4P
464172-58-5P 464172-59-6P, Cobalt lithium magnesium phosphate
(Co_{0.94}Li_{1.01}Mg_{0.05}(PO₄)) 464172-60-9P, Cobalt lithium magnesium
phosphate (Co_{0.93}Li_{1.02}Mg_{0.05}(PO₄)) 464172-61-0P, Cobalt lithium
magnesium phosphate (Co_{0.75}Li_{1.25}Mg_{0.05}(PO₄)) 464172-62-1P,
Cobalt lithium magnesium phosphate (Co_{0.7}Li_{1.25}Mg_{0.05}(PO₄))
464172-63-2P 464172-64-3P 464172-65-4P 464172-66-5P
464172-67-6P 464172-68-7P 464172-69-8P 464173-33-9P

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RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(cathode active material for
nonaq. electrolyte secondary
battery)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE
THIS RECORD (4 CITINGS)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L75 ANSWER 32 OF 32 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2002:372947 HCAPLUS Full-text

DOCUMENT NUMBER: 137:297251

TITLE: A comparison of the electrode/
electrolyte reaction at elevated
temperatures for various Li-ion
battery cathodes

AUTHOR(S): MacNeil, D. D.; Lu, Zhonghua; Chen, Zhaohui;
Dahn, J. R.

CORPORATE SOURCE: Department of Chemistry, Dalhousie University,
Halifax, NS, B3H 3J5, Can.

SOURCE: Journal of Power Sources (2002),
108(1-2), 8-14

CODEN: JPSODZ; ISSN: 0378-7753

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 May 2002

AB Differential scanning calorimetry (DSC) was used to compare the thermal stability of
charged cathodes in 1 M LiPF₆ EC/ DEC electrolyte. Seven possible cathode materials
for lithium-ion batteries (LiCoO₂, LiNiO₂, LiNi_{0.8}Co_{0.2}O₂, Li_{1+x}Mn_{2-x}O₄,
LiNi_{0.7}Co_{0.2}Ti_{0.05}Mg_{0.05}O₂, Li[Ni₃/8Co₁/4Mn₃/8]O₂, and LiFePO₄) were tested under the
same conditions. Welded stainless steel DSC sample tubes, that ensured no weight loss
during anal., were used for these measurements, making them reliable. A consideration
of these DSC results and the known electrochem. properties of the cathodes may assist
the selection of the most suitable lithium-ion cathode material for use in a particular
application.

IT 221689-64-1

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or
reagent)

(comparison of the electrode/electrolyte
reaction at elevated temps. for various Li-ion battery
cathodes)

RN 221689-64-1 HCAPLUS

CN Cobalt lithium magnesium nickel titanium oxide
(Co_{0.2}LiMg_{0.05}Ni_{0.7}Ti_{0.05}O₂) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.2	7440-48-4
Ti	0.05	7440-32-6
Ni	0.7	7440-02-0
Mg	0.05	7439-95-4
Li	1	7439-93-2

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery cathode selection electrode
electrolyte reaction

IT Battery cathodes

(comparison of the electrode/electrolyte
reaction at elevated temps. for various Li-ion battery
cathodes)

IT 12031-65-1, Lithium nickel oxide LiNiO₂ 12057-17-9, Lithium

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manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium oxide
LiCoO2 15365-14-7, Iron lithium phosphate LiFePO4 113066-89-0,
Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) 221889-64-1
468772-63-6, Cobalt lithium manganese nickel oxide
(Co0.25LiMn0.38Ni0.38O2)

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or
reagent)

(comparison of the electrode/electrolyte
reaction at elevated temps. for various Li-ion battery
cathodes)

OS.CITING REF COUNT:	88	THERE ARE 88 CAPLUS RECORDS THAT CITE THIS RECORD (88 CITINGS)
REFERENCE COUNT:	22	THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

FULL SEARCH HISTORY

=> d his nofile

(FILE 'HOME' ENTERED AT 12:30:54 ON 08 MAR 2010)

FILE 'HCAPLUS' ENTERED AT 12:31:00 ON 08 MAR 2010

E US20060166096/PN

L1 1 SEA SPE=ON ABB=ON PLU=ON US20060166096/PN
 D ALL
 D SCA
 SEL RN

FILE 'REGISTRY' ENTERED AT 12:32:06 ON 08 MAR 2010

L2 7 SEA SPE=ON ABB=ON PLU=ON (105-58-8/BI OR 21324-40-3/
 BI OR 433304-54-2/BI OR 642999-33-5/BI OR 77-77-0/BI
 OR 872-36-6/BI OR 96-49-1/BI)
 D SCA

L3 8586 SEA SPE=ON ABB=ON PLU=ON (LI(L)CO(L)O)/ELS
 L4 QUE SPE=ON ABB=ON PLU=ON A2/PG
 L5 QUE SPE=ON ABB=ON PLU=ON B4/PG
 L6 118 SEA SPE=ON ABB=ON PLU=ON L3 AND L4 AND L5
 L7 1 SEA SPE=ON ABB=ON PLU=ON L2 AND L6
 D SCA

L8 24 SEA SPE=ON ABB=ON PLU=ON L6 AND 5/ELC.SUB
 SAV TEMP L6 HAN124REG/A
 SAV TEMP L8 HAN124REGA/A

L9 31 SEA SPE=ON ABB=ON PLU=ON L6 AND MG/ELS AND ZR/ELS
 SAV TEMP L9 HAN124REGB/A

L10 1 SEA SPE=ON ABB=ON PLU=ON L2 AND L9
 D SCA

L11 1 SEA SPE=ON ABB=ON PLU=ON 872-36-6/RN
 D SCA

L12 1 SEA SPE=ON ABB=ON PLU=ON 77-77-0/RN
 D SCA
 D CN
 E "1,4-BUTANEDIOL DIMETHANESULFONATE"/CN
 E "1,4-BUTANEDIOLDIMETHANESULFONATE"/CN
 E "1,4-BUTANEDIOL"/CN

L13 1 SEA SPE=ON ABB=ON PLU=ON "1,4-BUTANEDIOL"/CN
 D SCA
 D

L14 22237 SEA SPE=ON ABB=ON PLU=ON 110-63-4/CRN
 E DIMEHTANESULFONATE/CN
 E DIMEHTANE SULFONATE/CN
 E BUTANEDIOLDIMETHANESULFONATE/CN
 E BUTANEDIOL DIMETHANESULFONATE/CN
 E C6H14O6S2/MF

L15 35 SEA SPE=ON ABB=ON PLU=ON C6H14O6S2/MF
 D SCA
 E "1,4-BUTANEDIOL, 1,4-DIMETHANESULFONATE"/CN

L16 1 SEA SPE=ON ABB=ON PLU=ON "1,4-BUTANEDIOL, 1,4-DIMETH
 ANESULFONATE"/CN
 D SCA
 D CN

FILE 'HCAPLUS' ENTERED AT 12:53:24 ON 08 MAR 2010

D SCA L1

L17 32059 SEA SPE=ON ABB=ON PLU=ON BATTERY (3A) ELECTROLYTE
 L18 54 SEA SPE=ON ABB=ON PLU=ON L9
 D QUE

L19 54 SEA SPE=ON ABB=ON PLU=ON L3 AND L18
 L20 98972 SEA SPE=ON ABB=ON PLU=ON BATTERY (3A) (SECONDARY OR
 LITHIUM)

L21 50 SEA SPE=ON ABB=ON PLU=ON L20 AND L18
 L22 123 SEA SPE=ON ABB=ON PLU=ON L6

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L23          52 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L17
L24          1602 SEA SPE=ON  ABB=ON  PLU=ON  L11

FILE 'REGISTRY' ENTERED AT 12:57:13 ON 08 MAR 2010
SET SMARTSELECT ON
L25          SEL PLU=ON  L11 1- NAME :          5 TERMS
SET SMARTSELECT OFF

FILE 'HCAPLUS' ENTERED AT 12:57:13 ON 08 MAR 2010
L26          1977 SEA SPE=ON  ABB=ON  PLU=ON  L25
L27          2059 SEA SPE=ON  ABB=ON  PLU=ON  L24 OR L26
L28          15 SEA SPE=ON  ABB=ON  PLU=ON  L27 AND L23
L29          1165 SEA SPE=ON  ABB=ON  PLU=ON  L12

FILE 'REGISTRY' ENTERED AT 12:58:27 ON 08 MAR 2010
SET SMARTSELECT ON
L30          SEL PLU=ON  L12 1- NAME :          8 TERMS
SET SMARTSELECT OFF

FILE 'HCAPLUS' ENTERED AT 12:58:27 ON 08 MAR 2010
L31          3551 SEA SPE=ON  ABB=ON  PLU=ON  L30
L32          3947 SEA SPE=ON  ABB=ON  PLU=ON  L29 OR L31
L33          2849 SEA SPE=ON  ABB=ON  PLU=ON  L16

FILE 'REGISTRY' ENTERED AT 12:58:53 ON 08 MAR 2010
SET SMARTSELECT ON
L34          SEL PLU=ON  L16 1- NAME :         37 TERMS
SET SMARTSELECT OFF

FILE 'HCAPLUS' ENTERED AT 12:58:54 ON 08 MAR 2010
L35          3059 SEA SPE=ON  ABB=ON  PLU=ON  L34
L36          3428 SEA SPE=ON  ABB=ON  PLU=ON  L33 OR L35
D QUE L22
L37          1 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND (L36 OR L32)
L38          17 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L27

FILE 'REGISTRY' ENTERED AT 13:08:55 ON 08 MAR 2010
L39          1 SEA SPE=ON  ABB=ON  PLU=ON  105-58-8/RN
D SCA
D CN

FILE 'HCAPLUS' ENTERED AT 13:09:46 ON 08 MAR 2010
L40          7146 SEA SPE=ON  ABB=ON  PLU=ON  L39

FILE 'REGISTRY' ENTERED AT 13:10:01 ON 08 MAR 2010
SET SMARTSELECT ON
L41          SEL PLU=ON  L39 1- NAME :          9 TERMS
SET SMARTSELECT OFF

FILE 'HCAPLUS' ENTERED AT 13:10:01 ON 08 MAR 2010
L42          40945 SEA SPE=ON  ABB=ON  PLU=ON  L41
L43          41939 SEA SPE=ON  ABB=ON  PLU=ON  L40 OR L42
L44          20 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L43
L45          1 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L32
L46          0 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L36
D QUE L28
L47          56 SEA SPE=ON  ABB=ON  PLU=ON  L23 OR L28 OR L37 OR L38
OR (L44 OR L45 OR L46)
L48          36 SEA SPE=ON  ABB=ON  PLU=ON  L47 AND L18
L49          QUE SPE=ON  ABB=ON  PLU=ON  PY=<2005 NOT P/DT
L50          QUE SPE=ON  ABB=ON  PLU=ON  (PY=<2005 OR PRY=<2005 OR
AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT
L51          32 SEA SPE=ON  ABB=ON  PLU=ON  L47 AND (L49 OR L50)
L52          QUE SPE=ON  ABB=ON  PLU=ON  BATTER? OR (ELECTROCHEM?
OR ELECTROLY? OR GALVAN? OR WET OR DRY OR PRIMARY OR
SECONDARY) (2A) (CELL OR CELLS)
L53          32 SEA SPE=ON  ABB=ON  PLU=ON  L51 AND (L52 OR L20)

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L54	31	SEA	SPE=ON	ABB=ON	PLU=ON	L53 AND (ELECTROLYT? OR L17)
L55	19	SEA	SPE=ON	ABB=ON	PLU=ON	L54 AND L18
L56	31	SEA	SPE=ON	ABB=ON	PLU=ON	L54 OR L55
L57		QUE	SPE=ON	ABB=ON	PLU=ON	ELECTROD? OR ELECTROD?(2A) (POSITIVE OR NEGATIVE) OR CATHOD? OR ANOD?
L58	31	SEA	SPE=ON	ABB=ON	PLU=ON	L56 AND L57
L59		D SCA	L1			
L60		QUE	SPE=ON	ABB=ON	PLU=ON	ACTIVE(3A) (MATERIAL OR SUBSTANCE)
L61		QUE	SPE=ON	ABB=ON	PLU=ON	NONAQUEOUS OR NON(A)AQUEOUS
L62	27	SEA	SPE=ON	ABB=ON	PLU=ON	GROUP(2A) (II OR IV)
L63	4	SEA	SPE=ON	ABB=ON	PLU=ON	L58 AND (L59 OR L60 OR L61)
L64	31	SEA	SPE=ON	ABB=ON	PLU=ON	L58 NOT L62
L65		D SCA				
L66	31	SEA	SPE=ON	ABB=ON	PLU=ON	L58 OR L62 OR L63
L67		QUE	SPE=ON	ABB=ON	PLU=ON	?PERCENT? OR .PERCENT. OR PER(W)CENT? OR PCT? OR RATIO# OR PROPORTION? OR PART
L68		QUE	SPE=ON	ABB=ON	PLU=ON	MOL OR WEIGHT
L69	1	SEA	SPE=ON	ABB=ON	PLU=ON	L53 NOT L64
L70		D SCA				
L71	32	SEA	SPE=ON	ABB=ON	PLU=ON	L64 OR L67
L72	12	SEA	SPE=ON	ABB=ON	PLU=ON	L68 AND (L65 OR L66)
L73	32	SEA	SPE=ON	ABB=ON	PLU=ON	L68 OR L69
L74	19	SEA	SPE=ON	ABB=ON	PLU=ON	L70 AND L18
L75	32	SEA	SPE=ON	ABB=ON	PLU=ON	L70 OR L71
		SAV TEMP	L72	HAN124HCP/A		
		QUE	SPE=ON	ABB=ON	PLU=ON	VOLT OR VOLTAGE
	4	SEA	SPE=ON	ABB=ON	PLU=ON	L72 AND L73
		D KWIC				
	32	SEA	SPE=ON	ABB=ON	PLU=ON	L72 OR L74
		SAV TEMP	L75	HAN124HCPA/A		
		D QUE	L75			
		D L75	1-32	IBIB ED ABS HITSTR HITIND		